July, 1952

# WOOD and wood products

THE NATIONAL MANAGEMENT AND PRODUCTION MAGAZINE
OF THE $9 BILLION FOREST PRODUCTS INDUSTRY

**S. V. Fullaway, Jr.**
See Page 21 — WOOD SALUTES

### Utilization
To see how Indiana company uses scrap veneer, turn to page 23.

### Equipment
To complete Graham series on sharpening knives and cutters see page 34—Read How to Keep Motors Running on page 30.

### Lumber Manufacturing
On page 28 read how Idaho mill cuts two-by-fours from farm lot timber.

### Seasoning
Tests show how low moisture content causes "degrading". Page 26.

### See These Features
- Single Tool Setup
- Application of Hardboards
- Big Logs Mean Profits
- News and Trends
- Names and Events
- Markets
- New Products

A Vance Publication

One of two WHITNEY 97 PLANERS giving outstanding service in plants of Consider H. Willett, Inc., Louisville, Ky.

# Whitney 97 Double Planers

## "in constant service, up to 16 hrs. per day"

*Says* F. M. Brandon, V. P. in charge of Mfg. at CONSIDER H. WILLETT, INC.

"Our continued purchase of Whitney No. 97 Double Planers is proof of our high confidence in this type of equipment" continued Mr. Brandon in his letter.

Repeated purchases of Whitney 97 Double Planers by leading furniture and woodworking plants is evidence of the high regard they have for the quality performance of this planer. When you install a Whitney 97 you get the best in planing — long, trouble-free service — and low maintenance cost. Investigate today.

*Send for full information on the Whitney 97 Double Surfacer. Ask for bulletin M7.*

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MANUFACTURERS OF *Fine Furniture*

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March 20, 1952

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Winchendon
Massachusetts.

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The #97 whitney double planer illustrated was placed in the production line of our New Albany, Indiana plant the first of July 1950, and has handled the product of two high speed cutoff saws up to sixteen hours per day constantly from that time to this. The only shutdowns have been the normal ones for knife grinding and lubrication.

We have another #97 in our Louisville, Kentucky plant in the same type of service handling the product of three high speed cutoff saws. This service also has been very satisfactory.

Our continued purchase of this type of planing equipment is ample proof of our high confidence in the product of the Baxter D. Whitney & Son, Inc.

Sincerely,

CONSIDER H. WILLETT, INC.

Frank M. Brandon

Frank M. Brandon, Vice Pres.
in charge of manufacturing

FMB:MRQ

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WINCHENDON, MASSACHUSETTS, U. S. A.

Forestry direct

# WOOD and wood products

Forestry SD 1 W8743 Vol. 57 July 1952

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(Advertisement)

Mauk Talk

*Understand Indians used to broadcast messages by holding a wet blanket over the fire. Now we got television and get to see the wet blanket in person.*

• • •

She was sweet and simple. He married her because she was sweet and divorced her because she was simple.

• • •

*And then there was the fella who went to the cemetary each year to mourn the death of his wife's first husband.*

• • •

Happy Fourth of July to you and here's some advice that's hot as a firecracker.

To get the most from your order tell us what you need specifically—and what end uses you have in mind. We consider everything when we make up your order.

Add to your profits. Cut down on waste. Order from MAUK.

• • •

*Simple Celia says a gal who knows all the answers must have been out with questionable men.*

• • •

They don't come any smarter than the fella who managed to talk his wife into being sorry for the girl who lost her lipstick in the back seat of his car.

• • •

*We know a little boy who says he's been spanked as far back as he can remember.*

• • •

Judge: "You say the defendant stole your money from your stocking. Why didn't you resist?"

She: "How was I supposed to know the lousy bum was after my money?"

• • •

**MAUK Seattle Lumber Co.**
**Seattle 5, Washington**

**The C. A. Mauk Lumber Co.**
**Toledo, Ohio**

# *Step on it* for more production

# PORTER 43-20J Automatic Hydracut Saw

**Foot Pedal Control Ends Operator Fatigue**

The Porter 43-20J Automatic Hydracut Saw saves hours of labor . . . enables any cutting room operator, regardless of age, to cut more lumber per day by eliminating tiring hand operation. Operator simply positions the lumber against the adjustable cut-off stops . . . and presses the electrically operated foot control. The saw blade, mounted on a hydraulically operated carriage, *automatically* moves forward to make the cut and *automatically* returns. Fatigue from manual "push-pull" operation is gone.

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*The new Porter Bulletin 43-20J-1 fully explains the Automatic Hydracut Saw. Send for your copy today.*

*Dividend Designed by* **PORTER**

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**660 Front St., N. W.** **Grand Rapids, Michigan**

JULY 1952

WOOD and wood products

VOL. 57, NO. 7

# Industry News and Trends

## Construction

**New Construction Outlook:** According to a joint release of the U. S. Department of Commerce and Labor outlays for new construction in 1952 will set a new record of over $32 billion. Under both materials and credit controls private residential housing remained strong during the first half of the year. By materials and Regulation X relaxation increased momentum is expected in the second half of 1952. Private house starts are expected to reach 1,050,000 in 1952 as compared to 1,020,000 in 1951.

## Utilization

**Waste Utilization:** At least 100 West Coast Lumber and Plywood mills are chipping bark free leftovers and sending them to 10 kraft pulp mills in Washington, Oregon, California and Idaho. Under this program, the kraft mills have reduced by nearly one-half their need for logs from Western Forests. It has been estimated that this utilization step has reduced by 50% the amount of solid residuals, found at the sawmills in the State of Washington. In order to further the wood chips success story a good mechanical debarker will have to be introduced within the price reach of medium and small sawmills. By removing the bark before logs go to the sawmills the chips supply could be increased to a quantity large enough to feed 30 kraft mills according to James C. Hayes, wood boss for Everett Pulp and Paper Company. Note: See page 68, Wood & Wood Products, April 1952 issue for more information regarding the first installation in the South of a new type debarker and chipper at the Southern Lumber Company, Warren, Ark.

## Lumber

**New Southern Yellow Pine Ceiling Prices:** The office of Price Stabilization has announced manufacturers' dollars-and-cents ceiling prices on most of the standard grades of Southern yellow pine lumber. The new prices became effective June 9, 1952, in Ceiling Price Regulation 149.

These new prices are at approximately the average level of those established by the General Ceiling Price Regulation freeze on January 26, 1951, which are, generally speaking, the prices now in effect. The new ceilings are at levels with the needs of the defense program and are adequate to encourage greater production.

**Estimated Consumption of Lumber:** The Lumber Survey Committee in its 83rd quarterly report to the Secretary of Commerce gave the following report on the estimated consumption of lumber including exports by specie groups for the years 1948 through 1951 in million board feet:

| | 1948 | 1949 | 1950 | 1951 | First Quarter 1952 |
|---|---|---|---|---|---|
| Southern Pine | 8,899 | 8,576 | 9,150 | 8,388 | 2,074 |
| Douglas Fir | 9,777 | 10,606 | 12,440 | 11,779 | 2,867 |
| Western Pine | 6,852 | 6,687 | 8,056 | 7,623 | 1,269 |
| Redwood Region | 1,287 | 1,182 | 1,196 | 1,367 | 314 |
| Other Softwoods | 1,791 | 2,154 | 2,857 | 2,562 | 584 |
| Total Softwoods | 29,064 | 29,205 | 33,708 | 31,719 | 7,108 |
| Southern Hardwoods | 3,910 | 3,447 | 4,595 | 4,235 | 1,081 |
| Other Hardwoods | 2,829 | 3,181 | 4,302 | 3,962 | 943 |
| Total Hardwoods | 7,579 | 6,628 | 8,897 | 8,197 | 2,024 |
| Total Lumber | 36,643 | 35,833 | 42,605 | 39,916 | 9,132 |

## Government News

**Cut to Size Stock:** Expansion of the practice of procuring lumber cut to size at the mill is currently being given careful study, say Colonel F. E. Ressegieu of the Corps of Engineers. As District Engineer of the St. Louis District, Colonel Ressegieu has the responsibility for the control of lumber procurement for the entire Department of Defense and, therefore, has an interest in methods and processes designed to effect conservation and economy.

It is reported that some of the sawmills, now following the practice of cutting to size at the mill, claim that it enables them to utilize their lumber more closely and provides maximum use of the shorter lengths of lumber which go into the fabrication of boxing and crating.

Purchase of precut lumber or cut stock is advantageous to both the shipper and the user of lumber. It also provides for shipment of larger quantities of usable material in the same car. Thus the freight is saved on the unusable or waste portion of the lumber which is left at the mill. Furthermore, the Colonel emphasized, the practice would eliminate practically all waste by the user and would materially reduce man hours of labor in the cutting operations and handling of lumber at its destination.

**Treating Lumber:** to prevent deterioration of lumber stored for appreciable periods by the military is now being studied by Timber Engineering Co., Washington, D. C. under contract with the Corps of Engineers. Tests so far conducted indicate successful progress on the basis of results now available.

## Plywood

**Sales Training:** Every division of the Forest Products Industry is facing today the necessity for Creative Selling to maintain and expand old markets and develop new markets for our products. One of the basic needs is for

Blake & Johnson is headquarters for patented Twin-Fast® twin-thread wood screws now available with Phillips head as well as slotted round, flat and oval heads—in brass and steel, bright finished—in all standard lengths and diameters and some special sizes; others to order.
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manufacturing sales management, jobbers and wholesalers, and retailers and their sales staffs to thoroughly understand (1) properties and advantages of their products and (2) how to become energetic and imaginative salesmen through a better knowledge of sound selling methods. The new five sound-slide sales training films for jobbers and their salesmen just released by Douglas Fir Plywood Association is a step in the right direction. The subjects of these films are:

1. "What a Salesman should Know about Douglas Fir Plywood"
2. "How to Recognize a Prospect for Plywood"
3. "Help Your Dealers Work for You"
4. "Selling to Industrial and Institutional Buyers"
5. "The Advantages of Plywood in Use"

These excellent training films, complete with study materials, stand as a challenge to the rest of the industry—Softwoods, Hardwoods, Dimension Stock, Veneers, Hardwood Plywood, Millwork, etc.—to get busy and develop sales training materials as a means of not only holding their wood markets but building bigger and better new markets.

## Furniture

**Industry Economics:** In their 32nd annual survey of the country's household furniture industry, Seideman & Seideman report the following pertinent facts about the industry:

*Sales*—1951—$1,550 millions; 1950—$1,515 millions. A 3% increase.

*Profits*—Average net after taxes of 4.0% of sales in 1951 compared with 5.5% in 1950.

*Income Taxes*—Paid the government 51% of its operating earnings in 1951 against 45% in 1950.

*Profit Margins on Sales*—Were lowest for the smallest companies and increased with the size of the company, ranging from 1.87% for companies with less than $250,000 of sales to 5.03% for companies with $5 millions or more in sales.

*Profit and Loss*—14% of reporting plants sustained losses in 1951, while 37% realized less than 5%, after taxes, on their shipments.

*Earnings on Invested Capital*—(Net Worth)—in 1951 is estimated at 10.9% compared with 15.3% in 1950 and 9.0% in 1949.

*Current Outlook*—Not much different than for industry in general.

- Increased defense expenditures,

# PACKAGED, CUT-TO-SIZE

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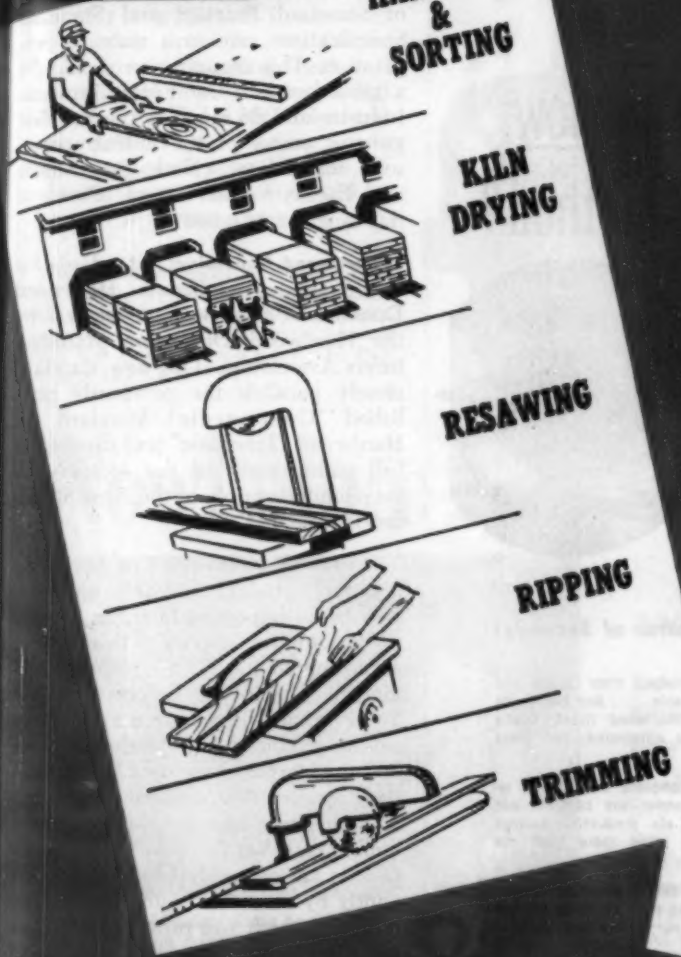
# BELCOBALSA®

# CORE STOCK

## SAVES YOU THIS




## SAVES YOU TIME, LABOR, LUMBER!

## GIVES YOU THIS

- PACKAGED, PRE-CUT STOCK. Each bundle contains one thickness—one length—one width.
- Scientifically KILN DRIED Core Stock.
- DRESSED one face to YOUR SPECIFIED THICKNESS.
- Exactly TRIMMED to YOUR LENGTH.
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- Core Stock which you take DIRECTLY from the RAILROAD CARS to your GLUING DEPARTMENT.

**BELCOBALSA** is cut from our own trees, our own logs and processed at our own Mills, Kilns, Dimension Plant assuring control over quality and delivery.

PRE-CUT for you, BELCOBALSA is your guaranty of LOW COSTS allied with the highest qualities of DIMENSIONAL STABILITY.

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REGISTERED TRADE MARK

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## BALSA ECUADOR LUMBER CORPORATION

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eased credit restrictions and reduced inventories should spur production in coming months.

- Politics will dominate economics during next six months, will pull out all stops to keep business moving.
- Industry adjustments still ahead due to shift from economy of scarity to one of plenty.
- Due to substantial increase of capacity in industry in recent years, we now face a change from an economy of plenty to one of surplus with the result that industry faces a tough, intra-and inter-industry competitive struggle.

**Furniture Outlook:** A plus sign appears for the first time this year in furniture according to Seidman & Seidman. New Orders booked in April exceeded those of April 1951 by 18%, cutting down the accumulated deficiency of the year to date from 18% at the beginning of the month to 12% at the end. Shipments in April were smaller than April 1951 by 8% and for the four months were down 14%. Unfilled orders continued to shrink and at the end of the month averaged little more than one month's current shipping levels.

## Laminated Woods

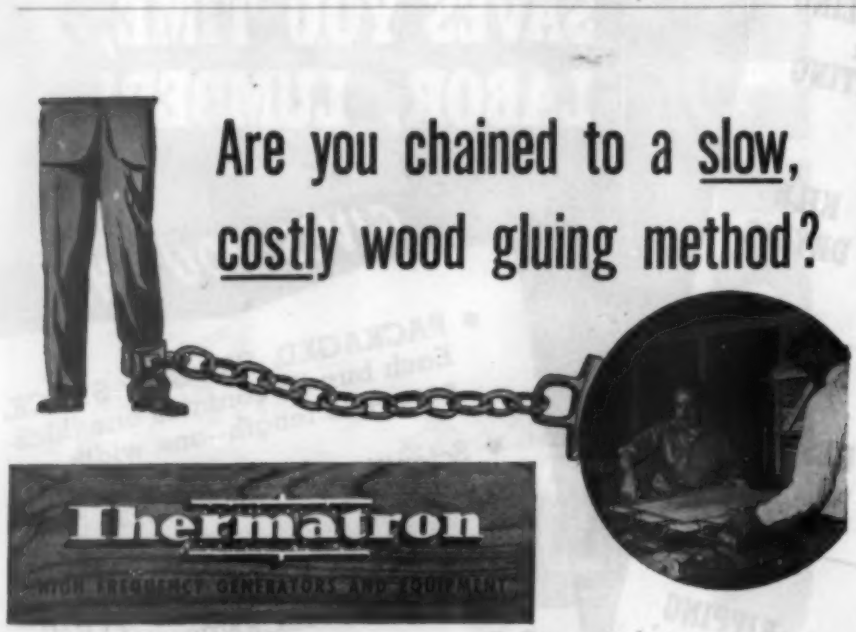
**Lamination:** The American Institute of Timber Construction has just been formed as a non-profit organization. Its membership will include active fabricators of engineered timber and glued laminated assemblies and structures and others whose interests and activities are kindred. Its purpose goes beyond that of a trade association as it will have common purposes of a technical society in that it will be this fast growing industry's liaison agency with research and evaluation activities. At the present time a Code of Standard Practice and Standard Specifications, are in a state of preparation. This organization should fill a great need in the Forest Products Industry and do much to put this fast growing sector of the industry on a solid foundation. (Note: See Names and Events for the list of officers of this new organization.)

**Hardwood Dimension:** "Standards for Glued and Laminated Hardwood Dimension", has been developed by the Hardwood Dimension Manufacturers Association. This new standard closely parallels the previously published "Commercial Standard for Hardwood Dimension" and carries the full endorsement of the industry. A very limited supply of the New Standard is available.

**Laminated Lumber:** is fast becoming a proven product and will undoubtedly be an important factor in extending the lumber supplies of this country according to the U. S. Corps of Engineers. Laminated processes utilize lower grade, short and narrow stock can be produced into the desired sizes and quality for many uses by the military services thus conserving supplies of high grade and large dimensioned lumber can thus be conserved. Specifications are currently being developed jointly by the military and the lumber industry which will provide the Corps of Engineers increased purchasing flexibility for procurement of laminated lumber items.

## Research

**Furniture Research:** Three major research projects will be carried on by Timber Engineering Company this year for the furniture committee of the NLMA's hardwood research committee. These studies include (1) continued study determining causes of surface checking of veneered panels and developing corrective measures. (2) Additional research on causes and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THERMATRON supplies the complete installation, including generators and jigs, under one contract and one responsibility. The immediate production savings THERMATRON brings you are often more than the initial installation cost.

Write us today for complete details about your bonding problem . . . We'll be glad to offer guidance without obligation. And ask us for our instructive bulletin No. vv-1.

**HIGH FREQUENCY GENERATORS AND EQUIPMENT FOR ELECTRONIC GLUE DRYING • BENDING • EDGE GLUING • VENEER BONDING**

Standard stock generators available from 500 Watt to 20 KW output, operating on 110 or 220 volt lines. Larger size generators up to 100 KW can be supplied for larger requirements.

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# "With lumber loads averaging 15 tons, my running costs are Only 5¼¢ a mile" says J. O. Songer, Wilmington, Calif.

**"Ford Truck economy has made a big cut in the operating costs of my business!"**



FORD TRUCK ECONOMY RUN

CALIFORNIA
Report No. 11193

J. O. Songer
Consolidated Lumber Co.
Wilmington, Calif.

Mr. Songer is now running 12 Ford Trucks in his lumber business and says, "Ford's got such a good reputation for long life that I can count on a higher price for my trucks when I come to turning them in." During the Economy Run, his F-8 BIG JOB travelled 9,366 miles and made *8,240 stops*, hauling loads that averaged 15 tons. Yet gas, oil and maintenance, cost but $499.52 —or only 5¼ cents a mile!

**A lumber-hauling** model F-8 like this is rated for 41,000 lbs. G.C.W. For lighter loads, many other models are available. Choice of five engines includes the famous Truck V-8 (now 106 h.p.) and the BIG SIX (now 112 h.p.).

# Now! More Gas Savings–up to 14%

**Two years** of testing show how well the new Ford LOW-FRICTION engines perform under the most severe conditions. They passed scores of 100-hour "destruction" tests. One model alone ran as much as 50,000 dynamometer test-hours, over 500,000 vehicle test-miles.

## and more Speed Hauling power, too!

**Advanced new LOW-FRICTION design in three new high-compression, overhead-valve engines, liberates power held "captive" by engine friction!**

Ford's LOW-FRICTION design incorporates a new SHORT-STROKE principle that reduces piston travel up to 20% in the new COST CLIPPER 101-h.p. Six, plus two new CARGO KING V-8's—145 h.p. and 155 h.p. These engines cut friction horsepower up to 30% to give you more power, and gas savings up to 14%, too! New direct-breathing OVERHEAD-VALVES give more efficient fuel feeding. New HIGH-COMPRESSION gives extra power on regular gas to meet today's Speed Hauling needs!

**SEE** how little it costs to run a Ford Truck in your kind of work! The figures are in this 144-page summary of results from the 50-million-mile Ford Truck Economy Run. See it at your Ford Dealer's now!

*Availability of equipment, accessories and trim as illustrated is dependent on material supply conditions.*

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corrections of the darkening of light finished furniture. (3) Evaluation of Chipboard for furniture cores including determination of strength, gluing properties, screwholding ability, possible tendencies to produce surface flaws of finished products and other factors important in core stock.

**Sixteen** potential furniture-industry research projects were presented to the committee. Research funds were only available for three. This is a situation that should be of interest to every furniture and hardwood manufacturer. Why not take a square look at your income tax. For most companies sizeable contributions to this type of research which makes more saleable wood products would cost little.

## Adhesives

**Resorcinol Adhesives:** Allocation controls Schedule 6 to M45 on resorcinol adhesives have been revoked. Removal of plant bottlenecks by the major producer, reentry of production by a second company have resulted in an increased supply of the chemical and recent military and civilian needs are now being satisfied in full. Possible future increases in demand are expected to be met by further increased capacity by existing producers and the production of a new plant by a new producer (See Trends June 1952). Resorcinol has had increasing military use because of its exceptional water resistant qualities and because it can be applied at room temperatures without the use of hot plate presses. It is used in the fabrication of mine sweepers, artic tents and in the growing laminated wood program.

## Miscellaneous

**Wood Requirements 1975:** Estimates on prospective wood requirements for the U. S. Forest Service:

> Lumber 10% more than in 1950. Paper, paperboard, rayon and other chemical products 50% more than in 1950. Veneer and Plywood 40% more than in 1950.

These estimates represent a real challenge to the Forest Products Industry both from the standpoint of raw material and whether we will be satisfied as an industry with these comparitively small increases. (Figures from speech by Glen Jorgensen before Intermountain Logging Congress March 24-26 1952 Spokane.)

**Freight Car Loadings** of forest products for the first 20 weeks of the year show a decrease of 7.0% over the like period in 1951 and are 15% ahead of the same period in 1950.

**Keep Lumber Loads at "Profit Level" with Moore Cable Lift**

**Dual feed — more footage through cut-off saws — at lower cost — with Moore Cable Lift.**

**Other uses for Moore Cable Lift:**

1. Feeding lumber to planers and similar machines
2. Unstacking lumber
3. Raising loads to a higher level
4. Manually stacking lumber loads

The Moore Cable Lift can pay for itself in a short time through reduced costs and increased production. Let our representative discuss its application in your plant. Write today—no obligation.

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE, FLORIDA — BRAMPTON, ONT. CANADA — VANCOUVER, B. C. CANADA — NORTH PORTLAND, OREGON

## N.L.M.A. Elects Bodine

Leo V. Bodine, 42, has been named Executive Vice-President of the National Lumber Manufacturers Association, Washington, D. C. He comes to his new post from the Weyerhaeuser Sales Co., St. Paul Minn., of which he has been Vice-President since 1950.

# An extra salesman

**TO HELP YOU SELL MORE WOOD PRODUCTS:**

# NELSONIZE THEM AGAINST DISTORTION!

**No worry about warp here!** Nelsonized drawer will also resist stain, of anything from water to ink. (Photo courtesy Hazard Editorial Offices. From the Indiana Desk Co. display at a Wood Office Furniture Institute exhibit).

To clinch the big orders here's a real selling feature: DIMENSIONAL STABILITY!

NELSONITE is the best insurance ever developed against warping wood or stuck doors and drawers. Proven success on everything from boats to bureaus. Its unique formula carries deep into wood fibers, seals and locks them against moisture damage.

NELSONITE lends other useful properties to wood. It's an excellent dirt and stain repellent, keeps surface easy to clean or wax. It drastically reduces grain checks.

NELSONITE makes an excellent finish base. Helps bond finish firmly to the wood.

Independent lab reports (sent on request) show NELSONITE has distinctly better control of shrink and swell than any other stabilizer. The final test is yours to make!

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We are interested in a Nelsonite formula for the following wood and wood products:_____

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City_____ Zone_____ State_____

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(PACIFIC MUTUAL DOOR CO.)

**GENERAL OFFICE • Direct Shipments . . .**

Straight and Mixed Cars.
Lumber and Lumber products . . . Fir and Pine Mouldings, Doors, Plywood and Cut-Stock
Stock Millwork—Cut-to-size Industrial Plywood.

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Warehouse stocks of
Plywood • Doors
Mouldings • Stock Millwork

WAREHOUSES IN 5 PRINCIPAL CITIES
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- Kansas City 5, Kansas
- Chicago 38, Illinois
- Baltimore 31, Maryland
- Elizabeth, New Jersey

# Wood Puzzlers

This department is designed to help you find an answer to your production and sales problems. Send us the facts. Experience has shown that some other readers can help.

### 16/4 African Mahogany—No. 52

For several months I have been trying to locate some African Mahogany, 16/4, and have been unsuccessful. Will you please give me the names and addresses of some prospective firms? Anything you can do will be greatly appreciated. (Ga.)

### Shorts in Spruce, Hemlock and Fir.—No. 53

Will you please advise us where we can find some lumber mills which develop shorts in spruce, hemlock and fir? We will appreciate it very much if you can advise us where we can get this material. (Ontario.)

### Carloads of Waste—No. 54

At the factory where our buckets are made (New Hampshire), we have carloads of waste consisting of whole blocks of the tree with the bark on, approximately 8 to 16 inches high. We feel there may be a market for this in the chemical or some other industry. This is a mixture of pine, birch and some oak, and is green lumber. We would appreciate it if you would mention this in your column. (N.J.)

PENOKEE
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**VENEERS**
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"association executive . . . . . ."

"paper industry leader . . . . . ."

"force for progress . . . . . ."

# Wood Salutes

**With this issue, we are saluting three more top rank executives, each of whom is contributing his expert knowledge and experience in an important department of the forest products industry.**

## S. V. Fullaway, Jr.

By temperament and ability, S. V. Fullaway, Jr., is considered by a host of Western Pine Lumbermen, and others throughout the U. S., as an ideal trade association executive. Since 1929 identified with the Western Pine Association and one of its predecessor organizations in top management capacities, Van Fullaway has worked to see his association climb from a shaky, depression-born coalition of two rival groups.

Fullaway left government service in 1927 to become district trade promotion manager for the NRLDA, and two years later became secretary-manager of the original Western Pine Assn. In 1931, this group combined with the California White and Sugar Pine Assn. with Fullaway as secretary. In 1934, he was named secretary-manager, in which position Fullaway has been the keystone in the guidance of the Western Pine Assn. until it now numbers 325 mills whose combined production accounts for more than 80 percent of the industry's total.

Also, under Fullaway's guidance, the research department, first of its kind, now has a modern laboratory and a nine man staff. The association's statistical department, forestry staff, and grading bureau's fine services to members and to the industry all further attest to Fullaway's leadership.

## D. C. Everest

D. C. Everest, president and general manager of Marathon Corporation and chairman of its board of directors, has been with the company since its establishment in 1909, first as general manager and since 1938 as president.

His other business affiliations include the vice-presidency of Masonite Corporation, Laurel, Mississippi; the Longview, Wash., Fibre Company and the Employers Mutual Liability Insurance Company, Wausau, Wisconsin. He is also chairman of the board of Wausau Paper Mills Company, Brokaw, Wisconsin, and Marathon Paper Mills of Canada, Ltd., and a director of many companies.

In addition to his activities in the paper industry, Everest has also been busy with civic affairs. A citation for distinguished service given him in 1949 by the Wausau, Wisconsin, Chamber of Commerce read, "Since coming to Wausau on March 1, 1909, he has given generously of his time and talents in numerous community projects . . ."

Everest has been Marathon County (Wisconsin) chairman of the American Red Cross since 1918. He is a trustee of Lawrence College, Appleton, Wisconsin, and one of the organizers of the world famed Institute of Paper Chemistry at Appleton.

## Chester B. Stem

Chester B. Stem has long been a vital force for education and progress in the hardwood products industry. He has done an outstanding job in his own business with face veneer.

Stem, who was born in Grand Rapids, Mich., and followed in his father's and grandfather's footsteps in the lumber business, started in the hardwood business with his own mill in Michigan. He later became sales manager and vice-president of a walnut lumber firm.

Stem founded his own present company, Chester B. Stem, Inc., in 1937, at New Albany, Ind. The company moved into a new sawmill and veneer mill in 1946. This plant uses the latest methods and equipment available.

Giving generously of his time, Stem has served as president of the American Walnut Manufacturers Assn., and president of the Veneer Assn. and the Indiana Hardwood Lumbermen's Assn. He is currently a director of the National Lumber Manufacturers Assn. He also serves as director of the National Hardwood Lumber Assn. and the Timber Engineer Co.

Chester Stem has always exerted great interest in furthering the planting of hardwood trees. His chief hobbies are fishing in Canada and quail hunting in his home state of Indiana.

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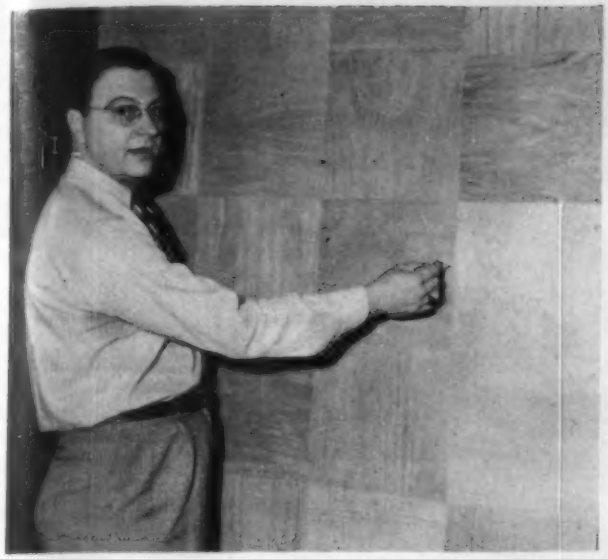
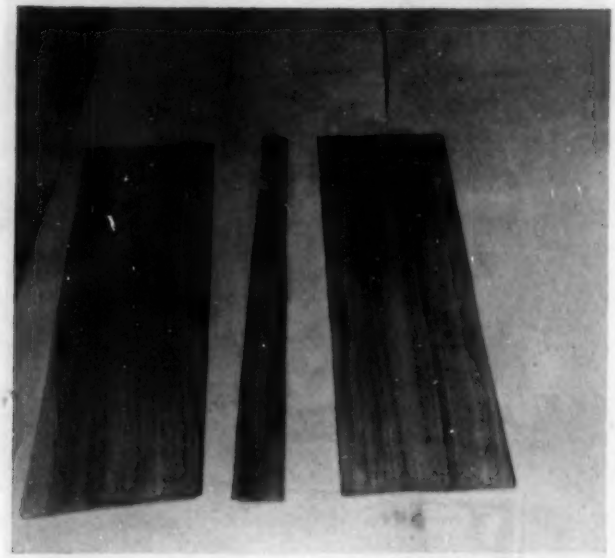


DECORATIVE PANEL BOARD is finished with veneer made from squares with grains perpendicular.



DEFECTIVE SECTION (center) has been clipped from former waste piece of veneer.

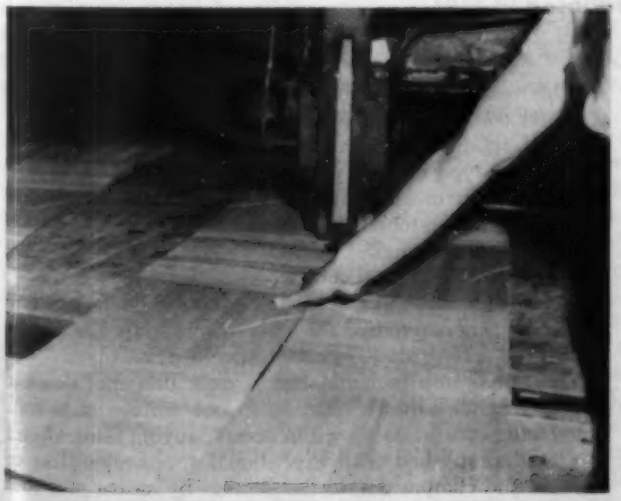
# Veneer Scraps Make Profitable Panels

**Here's how one manufacturer turns waste into sales by taping scraps of veneer into usable sizes.**

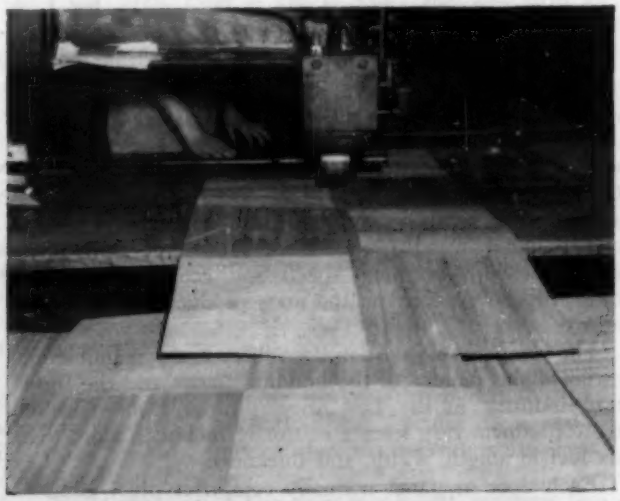
Making profitable veneer facings for decorative panel board is the way Jasper Wood Products, Inc., Jasper, Ind., utilizes scraps of veneer developed from the manufacture of other products. These scraps were formerly burned as complete waste.

Now defects are clipped out of the scrap, leaving clear pieces as narrow as 2 inches. These pieces are hand tapped together to from 12 inch squares. These squares, in turn, are machine taped into four by eight panels of face veneer which are applied to standard panel board stock.

Benefits are two-fold. First, a new product has been deviced that can be marketed at a profit. Second, with scrap cuttings carrying part of the cost load, it is frequently possible for to buy more plentiful, lower grade veneer stock.



LONG LENGTHS of veneer squares, previously hand taped, are fed into automatic taper.



DOUBLE WIDTH VENEER PANELS come out other end. These, in turn, are taped to other sections.

CORE BLOCKS ARE SET in place quickly no matter what the size of door.

OUTSIDE PANEL IS GLUED as it is pulled into place to fit on the core.

# Single Tool Setup Handles Variety of Door Sizes

**Small Los Angeles plant's production line handles many sizes and short runs with top efficiency. Standardizing of core materials is key to operation.**

**by T. A. Dickinson**

Efficient production in most plants and industries normally depends on the effective use of a highly-specialized assortment of tools for the duplication of a given article with maximum speed for a long period of time. But at Ostling Manufacturing Company of El Monte, Calif., a single tooling setup is being used to manufacture a variety of laminated wood products in both large and small quantities with as much speed and economy as could ordinarily be expected in the mass production of a single article.

The company in question specializes in the manufacture of doors and panels for the building trades and the furniture industry in the Los Angeles area. Dimensions of these products vary from a matter of inches to more than six feet in length, width, and thickness.

Each door or panel normally comprises pine, gum, or birch facing veneers which are glued up to a pine or cedar core. The adhesive is a high-strength, waterproof, weather-resistant, thermosetting phenolic-resin product.

Wood core and facing materials for laminates are cut, trimmed, planed, and otherwise fabricated with power tools of the type used in virtually all woodworking plants. Then, in order to eliminate the need for edge bands and special lamination tooling, a hollow core frame is assembled for each door or panel.

Core frames consist of four wood beams, glue-assembled with nail pressure like a picture frame. Each has the precise thickness required for a given core, plus the overall width and length dimensions of specified laminate.

The initial step in laminating a door or panel consists in applying an adhesive coating to one surface of a suitable facing veneer. As shown in accompanying illustrations, this is accomplished with exceptional speed-regardless of the size and composition of the veneer—by means of a roll-coating machine.

Next, the facing veneer is horizontally positioned on a

roll conveyor so that a core frame can be mounted on its glue covered surface. Then rectangular strips of wood core materials are used to fill the space within the frame.

Dimensions of the core materials have been standardized so that virtually any frame area can be manually loaded with maximum speed; and, as soon as each core is completed, a second facing veneer is roll-coated with phenolic adhesive and horizontally positioned so that it will be bonded to the upper surface of the core.

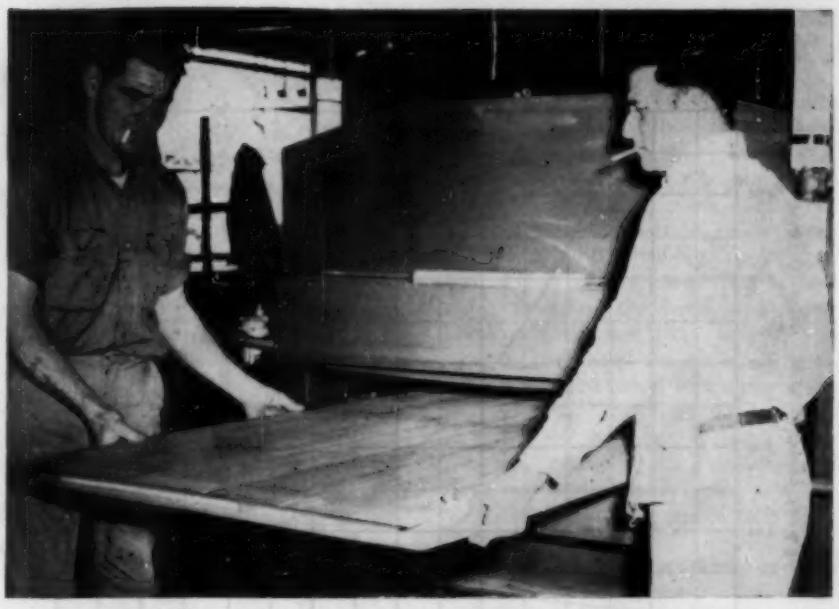
A 400-ton, steam-heated press is used to polymerize the adhesive coatings so that the laminae for each door or panel will be permanently bonded at the end of a curing cycle averaging about three minutes. Length of the latter curing cycle is regulated so that two men will have sufficient time to prepare a new load for the press while the platens are closed, and this of course makes it possible to begin a new press operation in a matter of seconds after each laminate is bonded.

Press-cured laminates are readied for delivery to Ostling customers by trimming the protruding edges of the facing veneers and sanding all external surfaces in a conventional manner.

Finish coatings are rarely applied to Ostling panels or doors prior to delivery. However, it is interesting to note that the roller equipmnt used in applying adhesives to the aforementioned facing veneers was initially developed by L. R. Wallace & Company of Los Angeles to facilitate the use of lacquers, enamels, and other organic coatings in finishing plywood, sheet metals, leather, fabric, etc.

In essence, roll coating involves the electrical rotation of two neoprene-covered steel rollers (which are horizontally aligned, one over the other) so that liquid materials will be transferred from the neoprene surfaces of one or both rollers to one or two surfaces of a material passing between the rollers—much the same as ink is transferred to paper by a mimeograph machine or an offset printing press. Small "doctor" rolls adjacent to the main coating rollers retain processing solutions so that the latter will be applied, as necessary, to the neoprene finishing surfaces.

Prior to production operations, the space between the coating rolls is adjusted in conformity with the thicknesses of the veneers to be processed; and, as a rule, the adjustments are such that very little pressure will be exerted on the wood materials since the transfer of adhesives from neoprene surfaces is primarily the result of surface tension. However, the exact amount of pressure used in any event is varied in accordance with the viscosity of the coating solution.



**ANY SIZE DOOR will fit in electronic gluer. Here typical door is ready for finishing operations.**

**TRIMMER TABLE IS the next step. Door is cut to exact size and then all surfaces are sanded.**

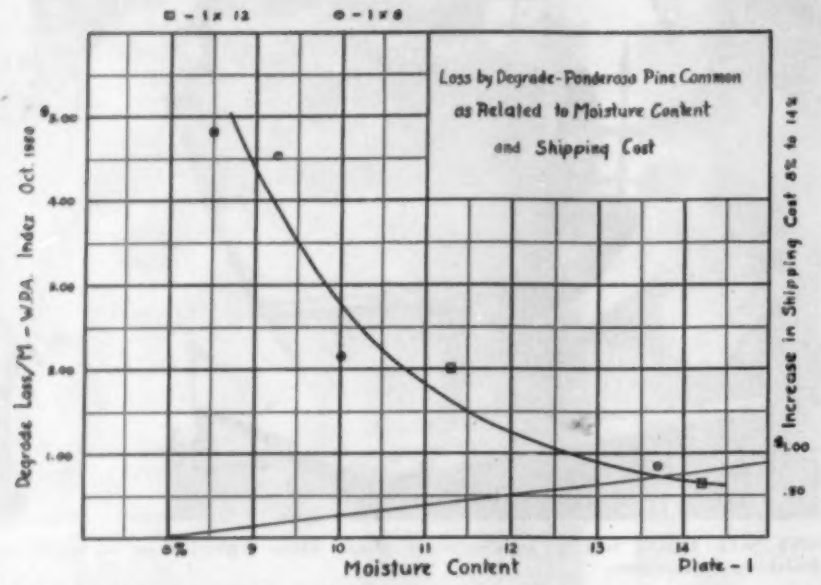
Both doctor and coating rolls are chain-rotated by a ¼-horsepower motor, and all essential components of each finishing machine are permanently mounted on a portable steel frame which has drip-proof end plates to prevent the loss of processing solutions when the roller elements are idling or in motion.

As many as 15,000 square feet of wood can be glue-coated or finished on one or two surfaces where roller equipment is utilized constantly for a single hour, and each gallon of processing solution can be uniformly distributed over as many as 850 square feet of surface.

Roll-coating facilities are particularly economical to use where it is possible to apply extemely viscous coatings, since the latter can be roll-applied without much preliminary thinning—thus saving the cost of large quantities of solvents or thinners, and eliminating difficulties due to steaming or slow-drying characteristics.

Adhesively-coated veneers are stacked on a small roller conveyor. Ostling workers can reload the press each time it is opened without difficulties due to the misalignment of laminae.

The press is a special machine tool, with large platen dimensions.


□ - 1x 12
○ - 1x 8
Loss by Degrade-Ponderosa Pine Common
as Related to Moisture Content
and Shipping Cost
Degrade Loss/M - WPA Index Oct. 1950
Increase in Shipping Cost 8% to 14%
Moisture Content
Plate - 1

**LOSS FROM "DEGRADING" increases at a faster rate than shipping costs decrease as moisture content is lowered.**

# Tests Show Why Lower Moisture Content Causes "Degrading" in Ponderosa Pine

**Gains in the form of lower freight rates are more than offset by loss in grade when lumber is kiln dried to too low a moisture content.**

**Western Pine Association tests carried out with the cooperation of Brooks-Scanlon Lumber Co. set optimum content at 12-13%.**

Lumber can be dried too dry. This is true especially of commons. In the drying of common lumber a very definite relationship exists between the final moisture content and the degrade. Part of the degrade occurs in the change from green to rough dry. The balance occurs during surfacing.

The moisture content of the common lumber shipped in the Western Pine Region in 1949 averaged 10.1% for the majority of WPA member mills. The most important reason given by the mills for drying lumber to this low a moisture content is to obtain the saving secured by lowered shipping costs. A second reason given is the inability of some mills to segregate their stock properly into drying classes, which condition leads to the practice of drying select and common together to the disadvantage of both. Common grades dried under such conditions have been found to suffer serious degrade. A third reason given is found in situations where heart and sap common is dried together. In such cases, the heart portion is normally very dry by the time the sap portion reaches satisfactory dryness. The practice of achieving more uniform final moisture content by means of an extended final conditioning period by steaming, or by a set equilibrium moisture content condition, is seldom, if ever, used.

The tests were made of the degrade occurring in Ponderosa Pine commons as related to moisture content when machined, to show the actual degrade losses from the rough green grade to the surfaced dry grade at various moisture content levels. (Plate 1.) The first series of these tests have been on Ponderosa Pine. While these results are applicable to other species in a general way, additional tests are now being made on other species.

## Test Procedure

Unlike the usual rough green grading practices, this lumber was very carefully graded. Each piece was grade marked with crayon on one end with an identifying color, in order to avoid loss of grade mark when surfaced. After drying and surfacing, the lumber was again graded. Tabulation of the grade in each condition was made to trace the changes in value from rough green to S4S dry. The footage remaining in the original grade after kiln drying and surfacing was tallied for each grade. Any drop in grade was tallied at its lower grade dry under each heading describing the contributing defect.

One crib each of 1 x 8 and 1 x 12–16' was dried at each moisture condition chosen for the test. The drying plan aimed at attaining moisture content levels of 8%, 11% and 14%. The schedule in current use at Brooks-Scanlon for 4/4, 8" and wider mixed heart and sap was followed in this test, with the exception of an 8 hour steaming period instead of 6. This additional steaming period lessened the spread in range of final moisture content.

DRYING SCHEDULE

| Dry Bulb | Wet Bulb | Time |
|---|---|---|
| 140° | 110° | 0-24 hrs. |
| 160 | 120 | 25 till dry |

Steam 8 hrs. (Condensate from heating coils, plus make up water from the line, was added to the steam spray in order to obtain high humidity for conditioning purposes).

In order to keep the series of kiln runs on a commercial basis, any departure from normal practice was avoided except as necessary to shorten or lengthen the schedule to attain the desired definite moisture content levels. Mill run stock of No. 1, 2 and 3 common was used without segregation for heart and sap, but with certain exclusions as noted below.

A plant which is able to practice segregration of heart and sap in the common grades can secure smaller spreads in the final moisture content than was attained in this test (Plate 2.) The percentage of heavy pieces could in this manner be held more easily to an acceptable level without

*(Continued on page 58)*

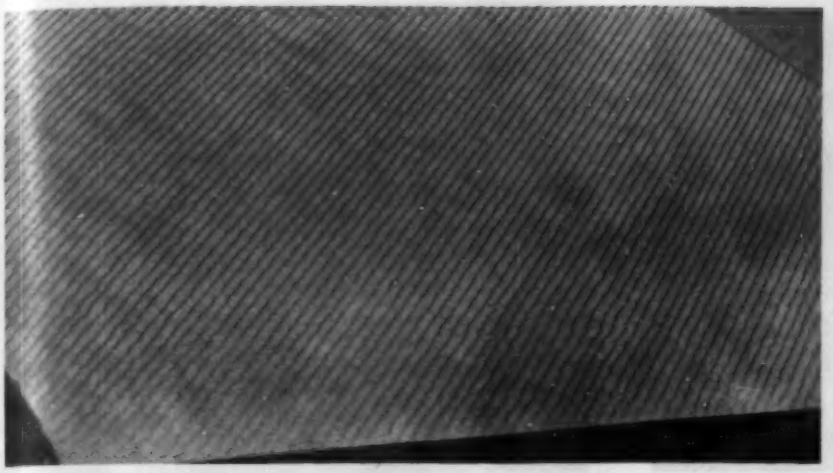


FIG. 3: Holes drilled in this core with veneered cross-banding have "telegraphed" through. Grain pattern is also apparent.

# Application of Hardboard in Veneered Panels

**Use of hardboards in the furniture industry gives better surface quality and makes manufacturing economies possible. Part II**

**By R. M. Boehm and J. S. Harper**

Figs. 3 and 4 illustrate the type of low-grade core with open and solid knots and drilled holes was used. The surface improvement obtainable with hardboard cross-banding. Fig. 3 is a photograph of the surface of a 1/20" veneer cross-banded panel, finished by a commercial furniture manufacturer. The photograph was made by reflecting a diagonal light grid on the panel surface to bring out surface irregularities. Three holes ½", ¾" and 1" in diameter were drilled near one end of the core. These holes have "telegraphed" through to the surface as shown in Fig. 3. This photograph also shows the cross-grain pattern of the veneer cross-banding. In contrast, Fig. 4 is a photograph of a similar panel made under identical conditions, except that 1/10" planed Tempered Presdwood was used for cross-banding rather than the veneer. This hardboard cross-banded panel of Fig. 4 shows no "telegraphing" of the drilled holes in the core, and no cross-banding wood grain pattern.

FIG. 4: This panel was cross-banded with 1/10 inch hardboard. The surface shows no grain pattern or "telegraphing" of drilled holes in the core.

While the improved surface quality obtainable with hardboard cross-banding is important in itself, the use of hardboard also makes possible important manufacturing economies. The ability of hardboards to bridge core defects makes it possible to use lumber one or two grades lower than is normally used. As the hardboard cross-banding is thicker than veneer, the lumber core may be thinner. Some economy in the use of lumber is thereby obtained. The finished panel is therefore not only better but is comparable in cost to the conventional panel made of veneer cross-banding, notwithstanding the lower unit cost of the veneer.

Manufacturing procedures of core preparation vary among fabricators, and depend also on the end use of the panel. Most manufacturers edge glue the core stock, and age the same for periods of rfom one day to one week, before final planing. There is a possibility that hardboard cross-banding will render the edge gluing and subsequent seasoning and replaning of the assembled core unnecessary. This procedure is to be developed and tested in factory operations.

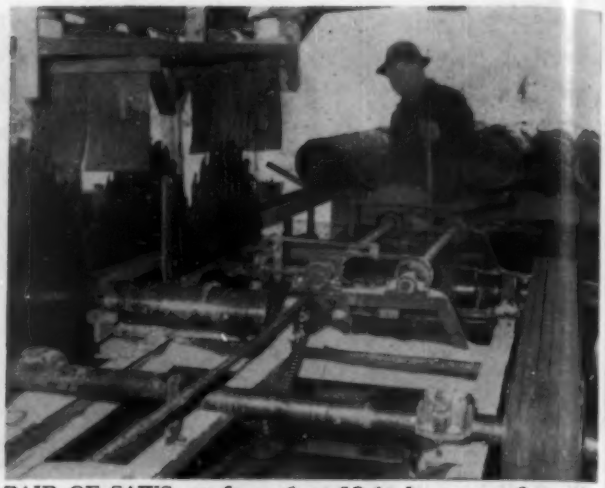
A series of tests were run to determine the resistance of the two types of furniture tops to surface damage. The test consisted of pressing endwise a short piece of drill rod 1/16-inch in diameter into the panel surface, and measuring the load in pounds and the depth of penetration. The results of this test are illustrated in Fig. 5. At penetrations up to about .01 inch, resistance to damage is apparently a function of the surface veneer only. As the load, or damaging force. increases beyond this point, however, the type of cross-banding begins to have effect. For example, at a 40 pound load the steel rod penetrated the surface of a standard, veneer cross-banded table top to a depth of .038 inch. By substituting the 1/10-inch hardboard for the veneer cross-band, the penetration was reduced to .002 inch.

A feature of hardboard cross-banding which should not be overlooked is the greater surface smoothness obtained. Smooth panels require less sanding. To these advantages may be added greater ease of handling hardboard in comparison with veneer, less breakage and waste, and elimination of splicing of cross-banding veneer.

Some people may regard the increased weight of hardboard cross-

*(Continued on page 46)*

EIGHT FOOT LOGS enter mill from pond on endless chain lifts.



PAIR OF SAWS set from 6 to 12 inches apart first take slab cut.

EDGER IS FED from transfer chain. Lumber moves from edger to sorting chain.

UNIT LOADS OF LUMBER are made up from sorting chain for easy handling.

# Two-by-Four Mill Thrives on Farm Lot Timber

**Idaho dimension manufacturer gears plant equipment to small logs in specialized operation.**

**by Bob Forbes**

The northern Idaho village of Santa now has a claim to fame almost the year around, not just before Christmas when it's post office is swamped by thousands of letters to be sent bearing the unique postmark. A local lumbering firm,Fairhurst Industries, has set up a high speed dimension sawmill on Tyson Creek, near Santa. The mill produces exclusively two by fours eight feet long with two-thirds fewer men than other Northwestern mills having its daily capacity.

Farm foresters of the area are excited by the mill's exceptionally fine boost given them in getting their good woods on the land. The small logs required make an ideal market for thinning material.

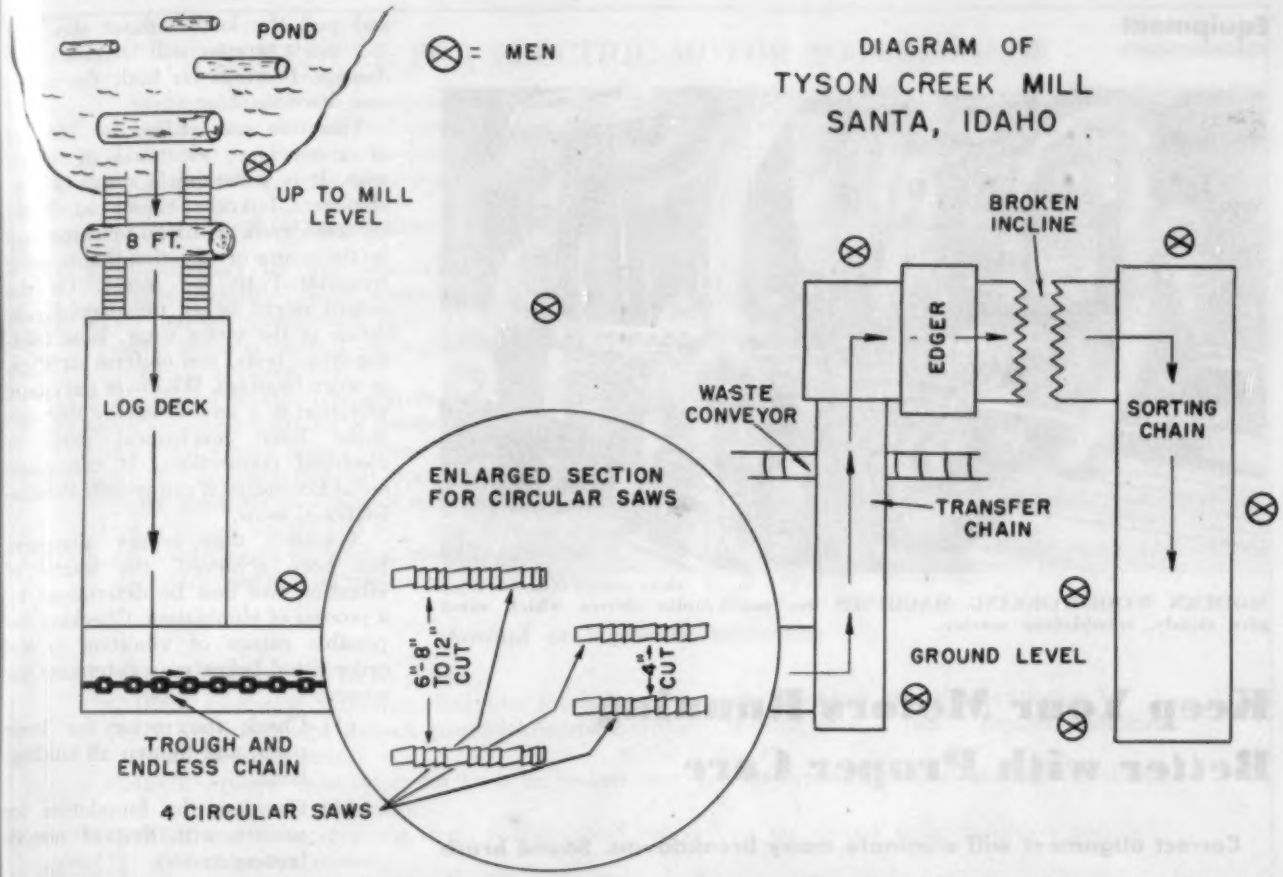
"We'd be glad to purchase 100 per cent of our eight-foot logs from farmers. We will even haul the woodlot products a reasonable distance, if necessary," states James Harvey, manager of the Tyson Creek mill.

But the mill has lined up a quantity of Milwaukee Land Company timber to be on the safe side. A branch of the Milwaukee railroad serves Santa and its grant lands are on either side of the right-of-way.

Sawing dimension stock for studding in construction and concrete forms is the answer to the mill's speed at converting about 75 cords of logs, six to 18 inches in diameter, into 38 to 40,000 board feet of lumber per eight-hour day. And, of course, speed also depends on good mill engineering, nine workmen always on their toes and the excellent coordination of management.

At maximum output, nine railroad cars of studs are shipped weekly from Santa.

The two by four mill can handle about 40 linear feet of logs per minute. Speed of operation reminds one of




**SMALL MILL LAYOUT is designed to cut handling costs to a minimum. This arrangement makes it possible to handle small logs economically enough to concentrate on two-by-four production.**

equally fast meat processing at a modern packing house.

Logs enter the mill in a near-continuous flow, from a log pond (1) kept full to the brim, on a horizontal log lift (2) to await sawing piled on a chock-full deck. As each log's turn for "butchering" arrives, it tumbles into a trough (3) where a dog on an endless chain shoves it forward into four circular gang saws.

The first pair of head-rig saws (4) make a four-inch-thick cant from the center of each log. Two saws in the second set are adjustable on their mandrel by a lever. They then take a two or four-inch-wide slice out of each usually thick slab left on either side of the central cant. Thus three cants, either two or four inches thick, are speedily produced from the average log to roll on to further processing on live transfer rolls.

The unusual circular gang head rig was improved by Fairhurst men.

An off-bearer stationed behind the head-rig tosses any slabs under two inches thick into a centrally located trough with an endless chain at its bottom to carry them to a refuse burner. He also flops cants on their sawn sides and sees that they get onto a camelback transfer chain which takes them to a Prineville battery edger.

The gang edger one yard wide has nine saws spaced two inches apart on one side of its mandrel and four saws four inches apart on the other. The edgerman places four inch cants in front of the nine saws, two-inch cants in front of the four saws. Cants move into, and two by fours move out of, the edger almost continously. Another offbearer is at the camelback transfer chain between the edger and green chain, which is at ground level down an incline.

## Only Nine Men

Another edger is to be installed soon in the Santa mill to cut 2" x 2" x 8' strips from slabs now wasted. A market has been found for wood of these dimensions in car strips and nailing strips to be imbedded in concrete.

Three men are usually kept busy on the green chain stacking two by fours on eight carrier blocks to be hauled away for drying. Nine men are the complete complement of the mill.

Power for the mill comes from two Guiberson war-surplus radial Diesel engines of 250 h.p. each. One of these is beneath the mill floor at the head-rig end and powers log lift, head saws and the endless chain through the saws; the other beneath the edger powers the remainder.

Any species of tree found in the area except western red cedar can be cut into eight foot two by fours at the Tyson Creek mill—western white pine, white fir, Engelmann spruce, lodgepole pine, western larch and Douglas fir. Cedar not only makes unsatisfactory two by fours, but trees of a size taken by the mill are far more valuable as poles.

Woodlot owners for a 50-mile radius around Santa could not envision, in their rosiest dreams, so perfect a situation for marketing thinnings. The difficulty is that few of them know thinnings in their woods and therein lies the farm foresters' big job. Vernon Burlison, state extension forester, and Lonnie Williams, extension forester stationed at the nearby town of St. Maries, started drumming up woodlot owners' interest in the two by four mill before it began operation for the first time in April, 1952.

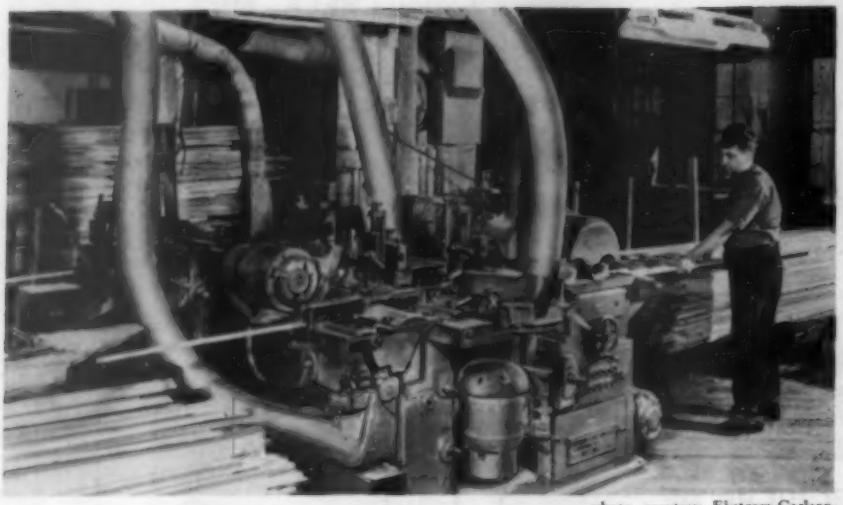


photo courtesy Ekstrom-Carlson

**MODERN WOODWORKING MACHINES use multi-motor drives which must give steady, troublefree service.**

# Keep Your Motors Running Better with Proper Care

***Correct alignment will eliminate many breakdowns. Sound brush care also means less trouble. Part III.***

Misalignment can be the cause of spring or broken shafts, burned out bearings, overload failure, or other motor damage. And the damage can also occur in the drive, or in the driven machine.

Couplings, pulleys, pinions, etc., should be carefully checked for alignment at the time of installation, and at intervals during the period of service. Settling of foundations, heavy floor loading, excessive bearing wear, and other factors can disturb alignment. Even a motor and machine combination on a common steel base is not proof against misalignment, as the base itself may have warped from off-level mounting. The push-apart tendency of spur gears, too, can disturb alignment, and should be checked occasionally.

There is no middle ground about misalignment—either the equipment is in line or it is not. In belted drives, the driving and driven sheaves should be lined up in such a way that the belt runs on the center of both pulleys without disturbing the free oscillation of the motor rotor. Pulleys, pinions, and sprockets should be mounted as close to the motor bearing housing as possible, to reduce shaft distortion to a minimum.

Coupled drives should also be aligned carefully, if a broken shaft or ruined bearing is to be avoided. Real success in coupling alignment depends on keeping both driving and driven shafts in a straight line. A variety of "flexible" couplings are now on the market, and the manufacturer's instructions should be followed for their alignment. Solid couplings should be checked carefully at assembly, and bolts holding the two halves together should be inspected periodically, and tightened if necessary.

Misalignment sometimes gives a warning. Excessive temperature may warn that it is causing overload in the motor or bearings. Increased vibration may be the warning signal. Or a rapid knocking may warn that the shaft is being driven against a bearing shoulder.

It is sometimes possible to realign the motor and its drive while the set is in operation. With mounting bolts loosened, variations in position of motor and drive can be tried until the sysmptoms disappear and the set is in line. Shims can be used under motor feet to level it up with the driven machine.

Excessive tension in belt or chain drives can also be considered as a factor in misalignment. Belts require a certain amount of tension to start and pull the load without slip, but too much tension will overload and damage bearings on both the motor and drive machine.

Vibration can shake the life out of a machine, electrical or otherwise. It is sometimes a result of misalignment, but other causes too, should be considered. A driven machine may be the source of vibration that is being transmitted to the motor. Or the culprit might be an unbalanced condition in the motor rotor, loose holding-down bolts, non-uniform air gaps, or worn bearings. Whatever the cause, vibration is a serious enemy that can shake loose mechanical parts or electrical connections. It can cause metal fatigue, or it can greatly increase frictional wear.

Assuming that proper alignment has been achieved, the source of vibration can best be determined by a process of elimination. Checking the possible causes of vibration in the order listed below may determine the source:

(1) Check the motor for loose parts, and tighten all holding-bolts.

(2) Compare the foundation for solidity with that of non-vibrating motors.

(3) Check bearing clearances. Bearing wear to the extent of two or three times the original bearing clearance will not impair operation provided the correct air gap is maintained and the bearing seals are adjusted.

(4) Operate the motor alone, disengaged from the drive or driven unit. It may be that the vibration is caused by forces outside the motor itself.

(5) Check rotor for unbalance. This should not be necessary unless repair work has caused unbalance. Motors leave the factory with rotors in balance.

Uneven wear of slip-rings and brushes is a maintenance problem where synchronous or wound rotor induction motors are used. It is impossible to eliminate wearing of these parts, since no effective lubrication can be applied to reduce the friction between brushes and rings. What is important is that every effort is made to keep this wearing under control.

Certain conditions will lead to grooving of the slip-ring surfaces in narrow rings or ruts. The abrasive nature of dust can hasten brush wear of ring surfaces and cause grooving. As previously noted, all motor parts should be wiped free of dust at regular intervals. Care should be

## SCHEDULE FOR ELECTRIC MOTOR MAINTENANCE

Maintenance of electric motors: watching for symptoms of these basic causes for motor failure, should be carefully planned, and systematically carried out. Maintenance schedules should be tailored to fit plant requirements as determined by careful analysis of problems involved. A typical schedule would include most of the following:

### Weekly Inspection

CHECK surroundings for any unusual conditions that might jeopardize motor operation.
CHECK for unusual noises, such as might be caused by metal-to-metal contact, or for odors that might indicate excessive heat.
CHECK motor and bearing temperature with the hand.
CHECK for excessive sparking of brushes. Check brushes for wear. Check pigtail connections.
CHECK for dirt accumulations on motor. Wipe off motor parts. Look for evidence of moisture. See if any oil or grease has worked past bearing seals.
CHECK oil level on sleeve bearing motors, and refill if necessary. See that oil rings are rotating properly.

### Monthly Inspection

CHECK brushes for fit and free play in holders. Check brush-spring pressure. Replace worn or damaged brushes. Examine slip-ring surfaces for unusual roughness.
CHECK for oil leakage an all bearings. Look for signs of excessive bearing wear. Check oil for evidence of dirt or sludging, and clean out oil reservoirs if necessary.
CHECK belt drives for slack and surface conditions. See that belt runs steadily and close to motor edge of pulley.
CHECK loads for changed conditions, poor adjustment, or improper handling.

### Annual or Biennial Inspection

CHECK air gap with feeler gauge.
CHECK insulation resistance. Examine insulation surfaces for cracks or excessive brittleness.
CHECK all bearings. Repack grease-lubricated bearings (at least once a year). Replace defective bearing parts.
CHECK squirrel cage rotors for loose or broken bars, and for evidence of local heating. Check fan blades for looseness.
CHECK and clean collector rings, washers, and connections on wound rotor induction and synchronous motors.
CHECK and clean thoroughly all motor parts and ventilating spaces.
CHECK belt drive for possible replacement.

taken to keep an oil film from collecting on the rings, where it can both accumulate dust and prevent proper contact with the brushes. Surface irregularities can result from uneven oxidation on the rings if brushes are left in contact with rings during prolonged shutdown periods.

Normally, satisfactory operation of rings and brushes can be obtained by meeting the following conditions:

(1) Brushes must be properly seated to make full contact with rings, and should not override the edges.
(2) Brush pressures recommended by the manufacturer should be maintained.
(3) Brushes should be of the correct grade for the application.
(4) Brushes must be free to move in the holders.
(5) Rings must be kept clean of dust and oil.
(6) Brushes should be lifted from ring surfaces during prolonged shutdowns.
(7) The motor, itself, must be operating within its rating.

Motor shafts should be free to float axially, spreading wear over a wider area on the ring surfaces. Belt drives should be so aligned that such axial movement is not hampered. Rough or uneven ring surfaces should be remedied as soon as possible. If this is neglected, wear will be increasingly rapid, grooving and pitting will take place, and excessive sparking will result. Resurfacing can often be done without removing the rotor or the rings, by running the rotor in its own bearings, using an abrasive stone secured in a suitable holder. Care should be taken during resurfacing to keep abrasive dust from entering the motor windings. Hand stoning should not be attempted, as it may exaggerate and enlarge surface irregularities.

### Brushes Can Cause Grooving

Brushes, too, can be worn unevenly, and in themselves contribute to excessive wearing or grooving of slip rings. If such a condition exists, the brushes should be properly seated to the correct arc, or replaced with a new set. Manufacturers of slip-ring motors generally advise that a complete set of spare brushes for each motor be kept on hand.

Overload of motors beyond rated capacity will cause them to heat up excessively, and eventually break down or burn out. Motor manufacturers provide a margin of safety by rating the capacity of motors below the actual breaking point, but this safety factor should never be jeopardized by deliberately causing a motor to carry too great a load.

Overloading is not always intentional. It can be produced accidentally by misapplication of the motor design, by obstruction in the drive or drives, by excessive friction in the motor, or by trying to obtain greater output from the driven machine than the motor can carry. Any of these conditions can make the motor current exceed its nameplate rating, with a heat rise that may be as much as the square of the current increase, causing burned out bearings, deteriorated insulation, or melted solder connections.

Overload protection in the power circuit to the motor can prevent damage to the machine itself. Generally, a thermal element operates an overload relay, or a fuse in the circuit blows out, when heated excessively, to open the circuit. For continuous production, however, it is better to guard against the conditions that cause overloading.

ECONOMICAL CUTTING of big logs leaves forest in condition for rapid growth.

PILES OF SAWN LUMBER show that large logs mean more production per man per hour.

# Why Sawing Big Logs Means More Profits

**Studies show that big logs produce more lumber at lower price per thousand. The percentage of high grades also favors big loads.**

**by H. D. Bennett, Forester**
**Appalachian Hardwood Manufacturers, Inc.**

The practice of forestry may be defined as the art of maintaining a balance between the silvicultural needs of the forester and the economic and physical needs of the operator and land owner. Forestry does not end with silviculture in the woods. It must be carried on through the sawmill to encourage the economic production of products best suited to meet the demands of the trade, from timber best adapted for each of the various products to be manufactured.

Many stands of Appalachian Hardwood timber offer an excellent opportunity to carry out selective cutting. The trees are selected for their maturity and the high quality of material they will produce, or their need to be removed from the stand to improve growing conditions for the next crop. Generally this leads to the harvesting of the larger trees while leaving the small ones to grow. From a series of studies carried out by the Forestry Division of Appalachian Hardwood Manufacturers, Inc., this has been shown to be not only god forestry in the woods but good economy at the sawmill.

Some operators believe that because they bought all of the timber in a certain tract they must cut it all in order to make a profit on the operation. A review of the tables will give an operator some food for thought on this idea.

The studies made concern the costs and returns of sawing large and small logs. "Large" logs were 14 inches or more in diameter, at the small end; "small" logs were 6-13 inches in diameter. All diameter measurements were made the average way of the log and volume based on the Doyle Rule. Studies were made at both band mills and circular mills.

In these studies the percent of vol-

SMALL LOGS - 6" - 13" in diameter at small end inside bark.

Number of Logs 25
Log Scale Doyle Rule 724 average log 27 bd. ft.
Lumber tally 1058
Over-run 46%

| Grade | Volume | % of Total Vol. | Value Per MBF | Total Value | % of Total Value |
|---|---|---|---|---|---|
| FAS | 18 | 2 | $150 | $ 2.70 | 4 |
| Select | 35 | 3 | 125 | 4.37 | 7 |
| No. 1 | 134 | 13 | 105 | 14.07 | 21 |
| No. 2 | 119 | 11 | 70 | 8.33 | 12 |
| No. 3A | 292 | 28 | 60 | 17.52 | 26 |
| No. 3B | 383 | 36 | 40 | 15.32 | 23 |
| Timber | 77 | 7 | 65 | 5.00 | 7 |
| Total/hr | 1058 bd.ft. | 100% | | $67.31 | 100% |

Average value of lumber per MBF - $63.62
Production per man hour - 151 bd.ft.
(7 man mill crew)
% No. 1 common better 18%

**CIRCLE SAW MILL attains only small production using small logs.**

LARGE LOGS - 14" - 24" diameter inside bark at small end

Number of Logs 9
Log scale Doyle Rule 1508 bd. ft. average log 167 bd.ft.
Lumber Tally 1596 bd. ft.
Over-run 6%

| Grade | Volume | % of Total Vol. | Value Per MBF | Total Value | % of Total Value |
|---|---|---|---|---|---|
| FAS | 167 | 10 | 150 | $ 25.05 | 18 |
| Select | 170 | 11 | 125 | 21.25 | 16 |
| No. 1 | 383 | 24 | 105 | 40.20 | 30 |
| No. 2 | 250 | 16 | 70 | 17.50 | 13 |
| No. 3A | 260 | 16 | 60 | 15.60 | 12 |
| No. 3B | 274 | 17 | 40 | 10.96 | 8 |
| Timber | 92 | 6 | 65 | 5.98 | 4 |
| Total/hr. | 1596 bd.ft. | 100% | | $136.54 | 100% |

Average value of lumber per MBF - 85.50
Production per man hour 228 bd.ft.
(7 man crew)
% of No. 1 common and better 45%

**BY USING LARGE LOGS production rate is stepped up 50% with same crew.**

# 20 collector KIRK AND BLUM DUST CONTROL SYSTEM

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ume from butt logs was similar for both the large and small logs. This eliminates the possibility that all of the small logs were from the top cuts of the larger trees.

In every timber operation the cutting of a certain amount of small logs from the upper part of the larger trees is necessary in order to make full utilization of the available timber. This will give an operator all of the small logs he should want to handle without cutting the small trees which make all small logs. A study of the tables will bring out several points:

1. The large over-run obtained from small logs merely increases the volume of low grade material to be handled at a loss or at best a very small profit.
2. Using the same amount of labor, production per unit of time is 50% greater in sawing large logs than in sawing small ones.
3. The percent of grades of No. 1 common and better is nearly three times as great in the large logs as in the small. This helps to maintain a high average value for the lumber, and opens good markets for the products.

While lumber values and operating conditions vary at different mills the same story holds true throughout. Small logs whether they be butt logs or top logs are produced at a high cost and low return.

SMALL LOG STUDY LOGS SCALED BY DOYLE RULE

Number of Logs 65
Volume of Log Scale 2875 average vol. per log 44 bdft.
Volume Lumber Tally 3988
Over-run 39%

Sawmill operated for 1 Hour Sawing These logs

| Lumber Grades | Vol. by Lumber Grade | % of Total | Value per MBF Lumber Grades | Total Value | % of Total |
|---|---|---|---|---|---|
| First & Seconds | 26 | 1 | $150.00 | $ .39 | 0 |
| No. 1 Common | 476 | 12 | 105.00 | 49.98 | 21 |
| No. 2 Common | 1540 | 39 | 65.00 | 100.10 | 41 |
| No. 3A Common | 1176 | 29 | 55.00 | 64.68 | 27 |
| No. 3B Common | 770 | 19 | 35.00 | 26.95 | 11 |
| Totals | 3988 bd.ft. | 100 | | $242.10 | 100 |

Av. value of lumber $60.17/M
% of #1 Common & Better 13%

LARGE LOG STUDY LOGS SCALED BY DOYLE RULE

Number of logs 22
Volume of log scale 5321 Av. Vol. per log 242 bd.ft.
Volume of lumber tally 5647
Over-run 6%

| Lumber Grades | Vol. by Lumber Grades | % of Total | Value per MBF Lumber Grade | Total Value | % of Total |
|---|---|---|---|---|---|
| Firsts & Seconds | 384 | 7 | $150.00 | $ 57.60 | 13 |
| No. 1 Common | 1628 | 29 | 105.00 | 170.94 | 38 |
| No. 2 Common | 2618 | 46 | 65.00 | 170.17 | 38 |
| No. 3A Common | 565 | 10 | 55.00 | 31.07 | 7 |
| No. 3 B Common | 452 | 8 | 35.00 | 15.82 | 4 |
| Totals | 5647 | 100 | | $445.60 | 100 |

Average value of lumber $78.89/M
% of #1 Common & Better 36%

**THIS CHART COMPARES production from large and small logs when sawing is done on a single 8-foot band mill.**

**Equipment**

# How to Sharpen Knives and Cutters

**Knife setting fixtures are needed to check for uniform shape. Concluding a series on sharpening and maintaining various woodworking cutting tools.**

**by Paul Graham**

Successful results from any cutterhead depends upon keen-edged cutters and proper knife balance. Perfect balance is an ideal too expensive for the ordinary woodworking plant to achieve, but proper working balance may be obtained by due attention to uniform weight of knives, cutters and/or bits, uniform shape and uniform projection.

Uniform weight is usually checked on even balance scales, balancing the knives in pairs before being assembled in the cutterhead. In the case of balancing knife assemblies for lathes, lathe bolts, washers and carriers are balanced in pairs and separately from the knives. Bolts used to fasten slotted knives to square cutterheads are also balanced in a like manner, usually with the knives they are to fasten. Rather than grind some of the metal from the heavier knife, an extra washer is sometimes used on the light side.

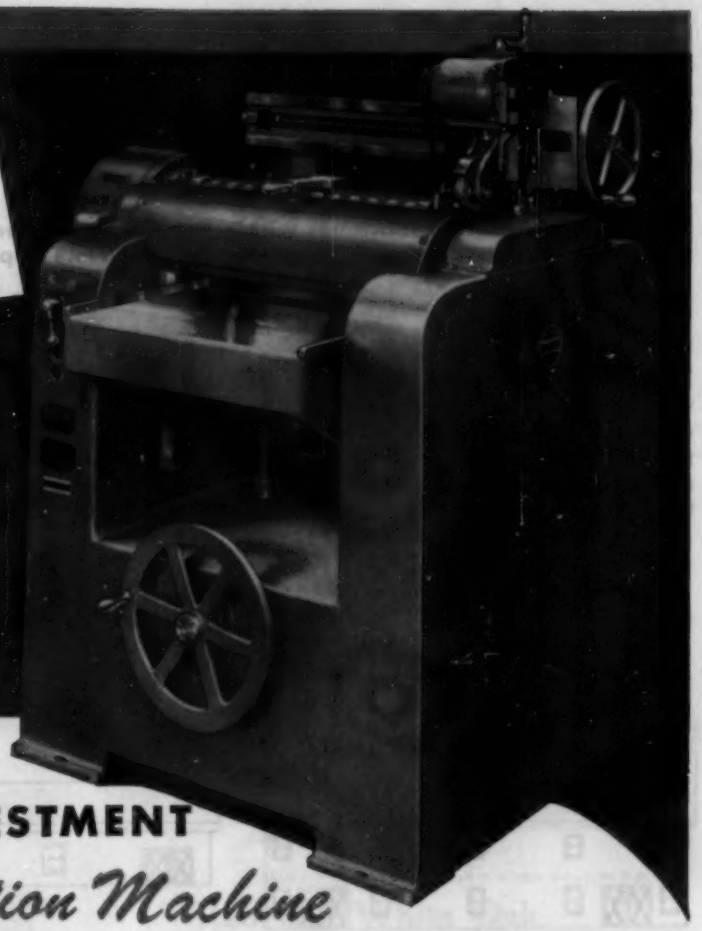
There are a number of knife setting fixtures available for checking uniform shape. On the planer, many may be attached to the knife bar, or on the moulder, they are attached to the jointer slide. Formed knife moulder and lathe heads are usually checked away from the machine in a set-up box or knife setting and touch up fixture. A typical unit is equipped with arbors of the proper size to suit the head spindles. In line with the arbor is a tilting layout table, fitted with spring clips to hold a template of the required contour. The knife on the cutterhead, or the cutter and bit assembly, is checked with the template, the head is rotated to the next knife or cutting assembly until the whole cutterhead assembly has been checked. Where any difference is noted in the shape of the cutting edge of any knife, a dial indicator is mounted above the fixture head for use in measuring the difference accurately for correction.

A set of cutters may have exactly the same shape and be of the same weight, and yet not balance because one cutter projects farther out than the others. This condition exists to some degree in any cutterhead that is not jointed. Where all knives are not required to make the finishing cut, however, a good tool for checking uniform projection is the dial indicator. This may be used after sharpened knives have been set-up in the cutterhead, or if the knives are ground in the head, they may be checked before removal from the grinder with the dial indicator secured to the bed.

Jointing brings all cutters in the head accurately into the same cutting circle. Most modern machines are fitted with jointing devices or arranged so they can be applied. Where the head must be removed for sharpening, however, separate power-driven knife jointers are used. Straight knives are jointed by passing the jointing stone, usually a fairly soft block of emery, across the knife parallel to its cutting edge.

*(Continued on page 79)*

# BUSS No. 248



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# Machinery Layouts that Pay

**Better placement of machines within the plant and modernization where necessary can cut production costs. An FPRS report.**

**by C. L. Babcock**

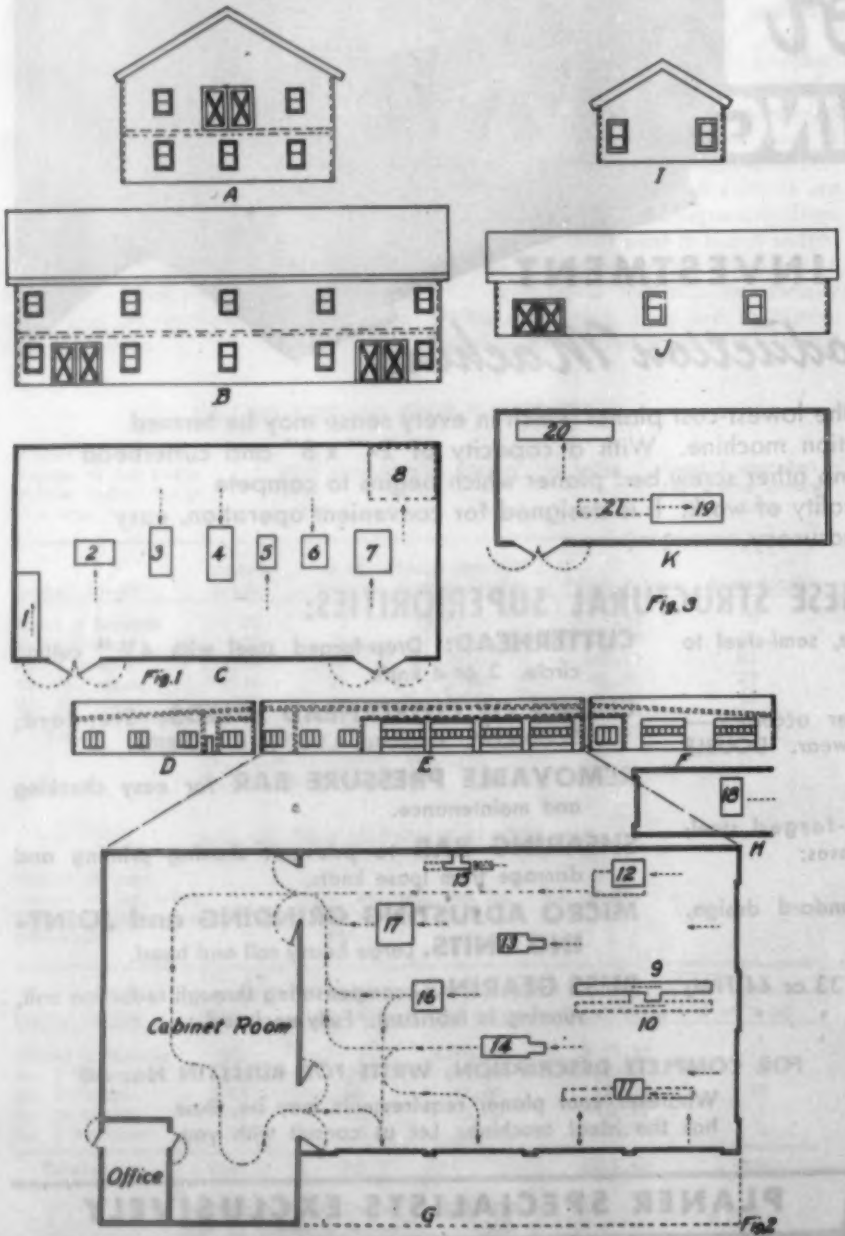
The problem of operating a woodworking plant at a profit is becoming increasingly difficult today, with ceiling prices setting controls on income and rising costs of labor and materials, taxes, transportation and other factors incidental to the manufacture of wood products increasing general expense.

The amount and kind of machine equipment required has always been a major problem which can be helped, if not completely solved, by careful evaluation, rearrangement and/or replacement. In most cases the added capital investment required serves to materially reduce manufacturing costs and permits the plant to be operated more efficiently and at a greater profit.

There are many ways in which this can be done and the following case-histories may help to solve some specific plant problems. Let us first consider the average millwork plant and compare the conventional type of millwork operation, with its run-of-the-mill machine equipment, with a modern millwork plant which takes full advantage of modern production equipment and layout.

As shown in Fig. 1, A and B represent a conventional two-story building, with A showing the end elevation and B the front elevation. Both show large swinging doors used for travel of lumber buggies in and out of the plant. The door shown in the upper story is used to lower finished cabinet work down to the motor truck or freight car for shipment.

In the machine layout, as shown at C, (1) is a swing cutoff saw; (2) represents the resaw; (3) a 6-inch moulder; (4) a 15-inch moulder; (5) a rip saw; (6) a planer; (7) a 48-inch roll-feed drum sander; and (8) is an elevator, though many such plants lack this facility. This line-up of machines is the result of the original use of a long line shaft for power, with each machine being driven directly off the shaft. When electric motors were later adopted for power transmission, no attempt was made to change the location of machines to reduce handling costs. This same layout has been used in setting up new mills with the machinery arranged in a similar manner just because that was the way Grandfather did it.




**MODERN PLANT ARRANGEMENT (Fig. 2) saves handling costs compared to old plant (Figs. 1 & 3). Some new equipment was necessary.**

## Better Handling

In a large number of woodworking plants today there are too many types of machines and strange as it may seem, too many machines. A competent survey may serve to eliminate those machines whose book value has long since become zero and whose production capacity is close to that figure. Rearrangement of the machines remaining and the addition of a few modern high-speed production machines will effectively eliminate excessive handling and increase plant production.

The modern millwork plant building is a single-story structure, with the office and cabinet room on the same level as the mill room. In Fig. 2 end elevation (D) shows the office entrance and (E) the side elevation with the

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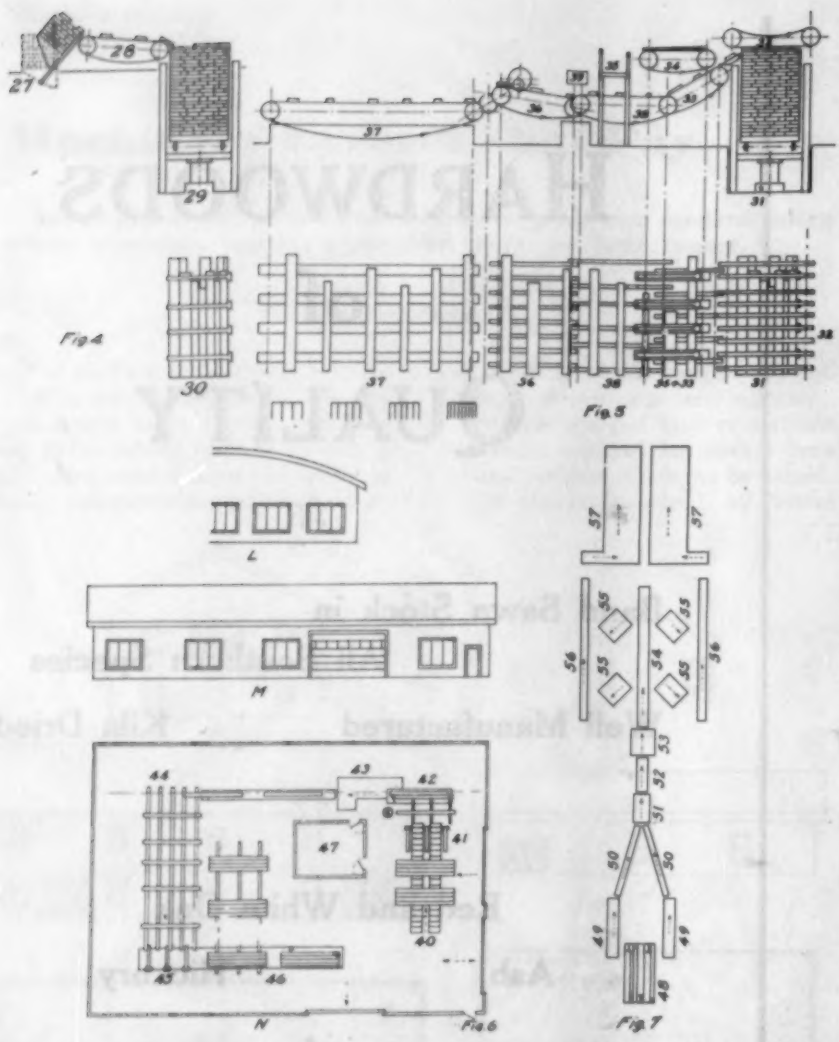


**PLANING MILL USES in-line machinery placement and latest type handling devices to achieve maximum production.**

office at the left, followed by the cabinet room and the mill room. Large overhead doors are used at the end (F) of the mill where lumber is discharged into the mill with either straddle carrier or lift truck. The doors at (E) are recessed for weather protection.

In the machine layout, shown at (G) (9) is a straight-line cut-off saw; (10) provision for a second saw; (11) a roll-feed power rip saw; (12) a chain-feed rip saw; (13) a 6-inch electric moulder; (14) either a 10-inch or 12-inch electric moulder; (15) a radial-arm saw; (16) a single-surface planer; (17) a 37-inch 3-drum endless sander. All machines are connected to an adequate blower system.

Part of the lumber entering the mill is processed right through to the cabinet room. Other lumber, particularly air-dried dimension, is discharged through the large overhead doors and is held just inside the mill during bad weather for loading as required.

Stock that requires ripping to straighten for glue jointing or running through the 6-inch moulder (13) or trim that needs sanding can be processed readily at machines (12) or (11) and (9) and on through to (17). If it is to be processed further in the cabinet room, the stock can then pass through the mill to that department.

## Replace Old Machines

If, on the other hand, the lumber is air-dried dimension, it can be processed at machines (11) and (14) and possibly at (16) and then be discharged through the overhead doors to the loading platform without interfering with stock enroute to the cabinet room. Heavy moulding, such as treads and sills, are run through the heavy moulder (14) and delivered directly to the cabinet room.

Comparing the layout of the old-style millwork plant with that of the modern plant, you will note the endless-bed sander (17) replaces the old roll-feed sander (7) and not only sands to uniform thickness but also handles short stock and all other work previously done on the roll-feed sander faster and better. The resaw (12) is replaced by a combination resaw and rip saw (18) located in a separate building (H) out in the yard and not in position shown. This is a utility machine used to reduce large stock to smaller dimension, usually in small quantities. When this machine is located in the yard, it is more accessible and permits most of the lumber to be handled without entering the mill.

Within the modern millwork plant, everything moves along the line in straight-line production without backtracking. Material designed for the cabinet room does not interfere with air-dried rough or dressed lumber that is processed only in the mill room and is discharged for loading and shipment. Stock ready for shipment does not clutter up the mill as it is temporarily stored in the space before the overhead doors awaiting the arrival of truck or freight car. The savings in materials handling alone is well worth considering as labor has been reduced by this layout as much as 40 percent in many cases.

## Modern Trimmer Needed

Let us next consider the difference between the average and modern planing mill. As shown in the Fig. 3, (I) and (J) represent a typical one-story building with machines arranged as in (K) to house a planer and matcher (19), a feeding table (21), and a trimmer (20). In the original setup there was no feed table, and being built before the days of fast feeds, the original planer and matcher fed at obout 30 feet per minute and the trimmer just about kept up with it. When the original machine was replaced, the present equipment—a 150 f.p.m. planer and matcher and feed table—was installed. The same trimmer was kept, however, which has to be adjusted for every length of board, so no appreciable increase was made in the overall production of the mill.

Installing a modern selective random-length trimmer requires more space than is usally available in the average planing mill and structural changes are often necessary. The best solution to obtain full advantage of reduced costs and increased production possible with this machine is a new mill building adequate for its operation.

What is probably the most modern planing mill in the country was installed at Rochester, N. H., early in

*(Continued on page 41)*

1951. This mill is actually in three sections and produces some 120,000 feet in two 8-hour shifts per day for a planing mill production much larger than the average mill, particularly in the Northeast. The principles involved in its operation can, however, be modified and applied to meet the requirements of a smaller mill with proportionate economy and increase in production.

In this planing mill operation a load of air-dried lumber dotted (27) in Fig. 4 is moved onto an unloaded hoist (27) which unloads each layer of lumber onto a transfer chain (28) which delivers it to a kiln car mounted on a lumber stacker hoist (29). A stick layer (30) permits stickers to be placed over each layer and the stacker lowers a course at a time as the unloader hoist raises until the kiln load is completed and is removed to the dry kiln.

After the load is dried, it is run, as shown in Fig. 5, onto an automatic kiln load unstacker hoist (31) which raises the load until the top layer comes into contact with a set of traveling chains (32) which remove the boards, under control of an operator on the platform (35), from the top of the load onto transfer chains (33). The stickers drop onto a transfer belt (34) and the operator removes them to a bunk at the end of the platform. If the lumber to be processed is air-dried, it is fed to the transfer chains (38) over a belt conveyor and bypasses the kiln load unstacker hoist.

### Automatic Trimming

Following delivery by the transfer chains, the lumber is next carried through a new type automatic random length trimmer (36) which automatically and smoothly trims the ends with hollow ground saws to even-foot lengths, from four to 24 feet, at the rate of 44 boards per minute, all counted by an electric eye. Defects or wane in any board may be cut out by dropping any saw, or saws, independently by the operator at the switchboard (39). All boards are graded for length, width and thickness at the grading table (37) behind the trimmer and are stacked into unitized lumber packages four feet square for removal by lift truck or straddle carrier.

The final stage of this planing mill operation is conducted in a large building equipped with roof trusses so that no posts are present to interfere with machining or handling, as shown at (L) and (M), and machine equipment is laid out for straight-line production, as shown at (N). The four-foot lumber stacks are picked up by straddle carrier in the storage areas and placed inside the mill on a floor deck conveyor (40) which accommodates three loads. The planer and matcher operator moves each load off the deck conveyor by means of foot-controlled push-button switches onto a tilting unloader hoist (41) which tilts and raises the load to feed the boards onto conveyor chains which carry them to the automatic feeding table (42). The automatic feeding table feeds the boards tightly butted into a ten-knife round head high-speed planer and matcher (43) at a rate of 325 f.p.m.

This high rate of feed requires constant feeding of boards with no lost time between loads to prevent machine down time. A single operator does this by automatic handling and as one load is discharged by the tilting unloader, it picks up the next load from the deck conveyor before all of the previous load has been fed to the planer and matcher. To this point one operator (X) controls lumber movement.

A maintenance and setup man operates from the grinding and setup room (47) convenient to the planer and matcher, where he grinds all

*(Continued on page 44)*

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Faster Cutting
Less Maintenance
-USE-
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KING SAWS
You can benefit in these three important ways by using Karbide King Saws:
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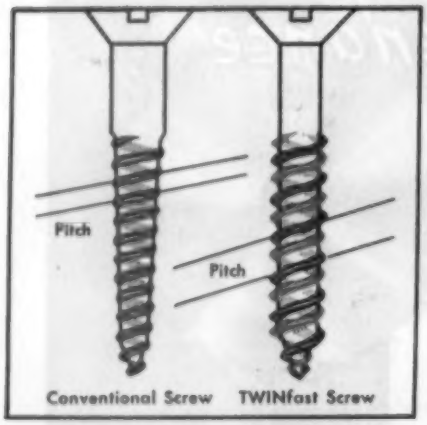
# Here's how the NEW Townsend TWINfast* Wood Screws

## Two Threads with Double the Thread Pitch Cut Driving Time in Half

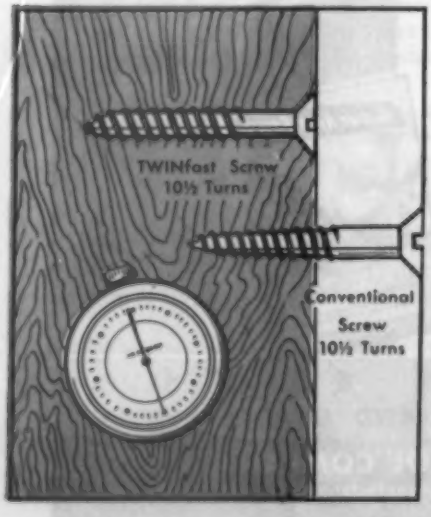



These phantom diagrams show on the left the thread pitch of a single thread screw compared with the *two* threads of the TWINfast Screw on the right. The second thread is indicated in blue. Note that TWINfast has twice the thread pitch which is why it requires only half as many turns for complete seating. Both screws are standard in size and number of threads per inch.

The basic improvement of the Townsend TWINfast Wood Screw over the single-thread standard wood screw lies in the *two* threads which start in a single, centered point, spiral the root in parallel formation and end on opposite sides of the shank. This makes possible a thread design with a pitch approximately twice as great as the pitch on standard screws. Also, in ordinary screws, each thread is opposed by a groove—in the TWINfast Screw the parallel threads lie opposite each other. TWINfast Screws are standard as to sizes and threads per inch.

## Faster Driving

The combination of *two* threads with double the pitch of ordinary threads means that with each turn of the driver, twice as much thread area enters the material—the screw is seated in half the time with less effort. For example, a No. 12 screw, either conventional or TWINfast with a 1" thread portion, has about 11 threads. To seat this conventional screw requires 21 turns of the driver. The TWINfast Screw with the same number of threads requires only half as many, or 10½ turns for complete seating. The advantage of faster driving is naturally reflected favorably in manufacturing costs through a reduction in man-hours and fatigue, a saving in assembly time and by increased production. Yet, TWINfast Screws cost no more than ordinary wood screws.

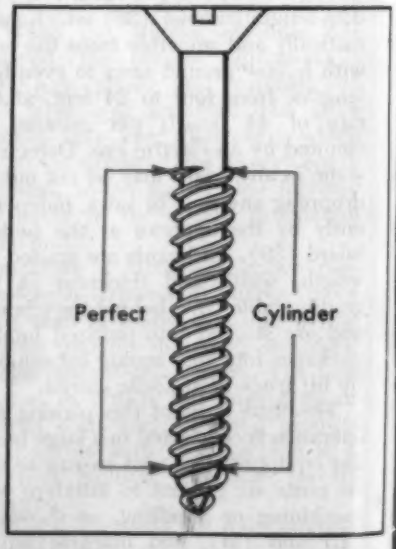



These two No. 12 screws each have 11 threads and each have been given 10½ turns of the driver. TWINfast is seated—the conventional screw only half in.

* Reg. U. S. Pat. Off.

## Cylindrical Body, Relieved Shank, Sharp Threads of TWINfast Screws Give Greater Holding Power

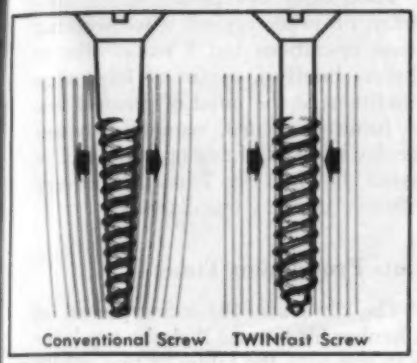
In contrast to the tapered construction of the conventional wood screw, the Townsend TWINfast Screw has a cylindrical body throughout its threaded length except for the taper at the point. This unique construction not only provides greater strength but also a greater thread area. In addition, the unthreaded portion, or shank diameter is "relieved," that is, the shank diameter is the same as the pitch diameter, not larger as in conventional screws. The threads are specially designed and have hard, sharp, blade-like edges which cut deep, clean threads into the material.




TWINfast Screw has a cylindrical body throughout its threaded length except for taper at the point. It provides more metal for greater strength.

# cut driving time in half
# increase holding power
# improve your products

# AT NO EXTRA COST




The diagram at left shows how the heavy shank of the conventional screw sets up stresses in the material and weakens seating. On the right you see how the relieved shank of the TWINfast Screw seats easily without setting up stresses. Note also the greater area of contact with the material provided by the deep, clean TWINfast threads.

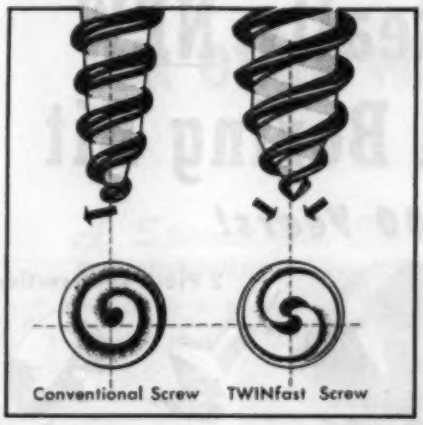
## TWINfast Screws Hold Tight...Use Fewer Screws

The cylindrical body and greater thread area of the TWINfast Screw provides an equal amount of contact with the material for the entire length of the thread which results in greater holding power, a better fill of the pilot hole and tighter seating.

In ordinary screws when the heavy shank is forced into the material it sets up stresses which may cause fractures or rupture, misalignment or a clumsy fastening. These stresses tend to pull the fibres away from the threads and weaken the seating. The TWINfast Screw with its "relieved" shank eliminates the wedge action of ordinary screws—prevents splitting, reduces material spoilage and makes a tight, safe fastening. This feature also eliminates the need in some cases of countersinking the pilot hole to provide shank clearance.

The greater holding power of Townsend TWINfast Screws makes it possible, in some instances, to use fewer or shorter screws which is an additional savings because TWINfast Screws cost no more than ordinary screws in the first place.

## Single, Centered Point Gives Quick Start, Balanced Driving . . . Reduces Work Spoilage




The two threads of the TWINfast Screw come together in a single sharp point in the axial center of the screw. This contrasts with the gimlet point of the conventional wood screw which tends to lead off-center.

The conventional tapered screw thread terminates in a gimlet point which has a bruising, crushing action rather than a cutting action on wood fibres. On the right is illustrated the single, centered point of the TWINfast Screw formed by juncture of the two sharp threads at the axial center of the screw. It is self-centering—bites into wood at first pressure and drives straight.

## Faster Starting

The single, centered point of the TWINfast Screw makes possible a quick, sure, self-centering start and the screw automatically goes in the right direction. Eccentric movement is eliminated, as well as, misalignment or displacement of the assembly components. In addition to saving time in centering the screw, this straight driving feature of the TWINfast Screw reduces the danger of the screw "canting" off to one side and spoiling material.

**Townsend TWINfast Wood Screws are available in all sizes and a variety of head styles—**
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knives and sets and joints them in cartridges, consisting of a yoke with a ball-bearing spindle. When a run is finished at the planer and matcher, he slips out the profile cartridges and replaces them with new cartridges for the next setup, making a complete setup in a matter of less than 15 minutes.

The top and profile heads and all of the upper feed rolls and outside head are moved by push-button-controlled motors instead of cranks, and electric brakes are provided on all heads to materially reduce setting up time. Following the setup, the machine operator goes onto his next run and the maintenance and setup man goes back to the grinding and setup room to make ready the next setup.

Dressed lumber passes from the planer and matcher over a belt conveyor (44) where it is inspected and graded prior to entering a tilting reloader (45) which automatically reloads the lumber into four-foot square packages and discharges them at floor level. The load is carried away from the reloader by live rolls onto a roll case (46) equipped with loading jacks to raise the load for removal by straddle carrier.

Thus, a load of rough lumber enters the mill by straddle carrier, passes through the mill without a single board being handled manually, except for inspection, and is removed by straddle carrier from the mill after processing. Where it formerly required 36 men in the old mill to produce less than 40,000 feet of lumber per day, the new mill produces more than 60,000 feet per 8-hour day with 18 men. The other 18 men operate another 8-hour shift so that the total production per day is about 120,000 feet, or over 500,000 feet per five-day week.

Time does not permit going into detail on other typical wood-working plant operations but I would like to discuss briefly a means of improving conditions at the point of greatest loss in furniture plants, namely between the dry kiln and gluing operations. The layout shown in Fig. 7 has proved very effective in many installations.

### Cuts Production Time

The kiln load (48) is first placed on a lumber lift to raise it so the top layer is in line with the tables of two cut-off saws (49). The defects are cut out and the stock cut to length here, and the stock is placed on a conveyor belt (50) for feeding to an automatic jointer (51) which faces the bottom side of the board so that it will lie flat and true. The conveyor (52) then carries it through a single surface planer (53) onto another conveyor belt (54). Four chain-fed rip saws (55) are placed along the belt to rip the stock for defects and to joint for gluing. The jointed stock is then placed on parallel belt conveyors (56) for delivery to two Plycor automatic edge gluers (57) and glued up into panels. This machine equipment arrangement permits the entire cycle of operations, from the rough board to the glued panel ready for further processing, to be accomplished in less than 15 minutes.

No one should jump right into a machine equipment modernization program. Careful study, analysis and planning are required for best results. A plant doing similar work with signal success may be productive of many good ideas. Equipment engineers also visit many plants and know what is going on. Plant supervisory and production personnel often have sound ideas and usually present a practical approach to the problem.

It always pays to start at the beginning. The single trouble spot at which the greatest saving seems possible may not pay off due to adjustments that have to be made in previous operations.


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## Veneered Panels

*(Continued from page 27)*

banding in furniture panels as a disadvantage. A hardboard cross-banded furniture top will weigh about one-half pound more per square foot than an equally thick panel made with veneer cross-bands. Other people may, however, regard the increased weight as an asset indicating massive and strong construction.

The second major application of hardboard is as a core material in 3-ply veneered panels. Such panels are used in the manufacture of furniture for end panels, drawer bottoms, back panels, drawer dividers, mirror backs, and in fact for every type of application where 3-ply plywood is used. Though more experience and test data have been developed for the 3-ply construction, 2-ply panels, with veneer on one face of the hardboard only, are also finding application. Data on the manufacture and use of 2-ply veneered hardboard panels are, however, not yet sufficiently developed to justify publication at this time.

In tests made in the Masonite laboratory on hardboard as a core material, a hardboard 0.185-inch thick was selected, so that when laminated with a 1/28-inch face veneer and a 1/20-inch back veneer, it would yield a 3-ply panel about 0.270-inch thick. The panel, when sanded, has a nominal ¼-inch thickness. While all test data were developed with this thickness, it should be noted that an important advantage of hardboards is the large variety of thicknesses, densities and physical properties available. For example, Masonite hardboard suitable for cores ranges from 1/10-inch to about ¼-inch in thickness. Thus, the fabricator, through proper selection of his hardboard core and veneer thickness, is able to produce veneered panels to suit each requirement.

For comparison, tests were also run on 3/16-inch, 3-ply plywood. To provide an additional comparison of hardboard and veneer as a core material, plywood panels were also made using a poplar veneer core of the same thickness as the hardboard. All test panels were made from selected veneer stock, preconditioned, glued and seasoned under identical conditions. Table 1 shows the construction of the three panels.

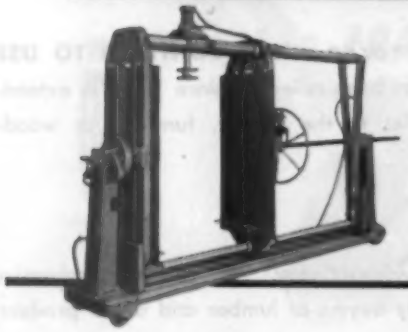
TABLE 1.—CONSTRUCTION AND LAMINATING PROCEDURE OF VENEERED PANELS OF TABLE 2

| Panel | A | B | C |
|---|---|---|---|
| Type Core | Hardboard | Poplar Veneer | Poplar Veneer |
| Core Thickness, Inches | 0.185 | 1/8 | 0.185 |
| Type Face Veneer | Mahogany | Mahogany | Mahogany |
| Face Veneer Thickness, Inches | 1/28 | 1/28 | 1/28 |
| Type Back Veneer | Poplar | Poplar | Poplar |
| Back Veneer Thickness | 1/20 | 1/20 | 1/20 |
| Finished Panel Thickness, Inches | .275 | .210 | .275 |
| Finished Panel Weight, lb./sq. ft. | 1.16 | 0.57 | 0.76 |
| Type Glue | Urea Formaldehyde | U-F | U-F |
| Glue Extension, % Wheat Flour | 50 | 50 | 50 |
| Pressing Method | Hot | Hot | Hot |
| Platen Temperature, °F | 240 | 240 | 240 |
| Pressure, lb./sq. ft. | 200 | 200 | 200 |
| Press Time, Minutes | 3 | 3 | 3 |
| Preconditioning | Room | Room | Room |
| Seasoning, Days | 7 | 7 | 7 |
| Method of Stacking | Solid | Solid | Solid |

Six 24" x 24" panels of each of the three types of Table 1 were made in the laboratory. A tabulation of the average strengths in transverse bending for some of the tests is given in Table 2. The transverse test results are those obtained in the maximum strength direction, which, with the exception of the ¼-inch plywood, is "with" the face veneer grain. Stiffness is measured by the load required to bend the panel a given distance, and toughness by the work done to bend the panel up to the maximum load. The area under the load-deflection curve represents the work done. A

*(Continued on page 54)*


Clamps



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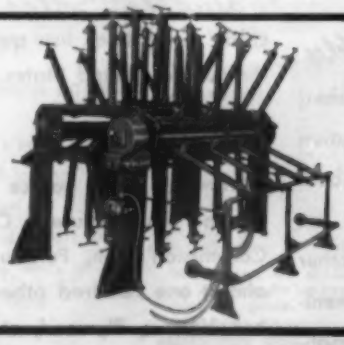

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# Kenneth Chesley Heads Forest Products Research Society

**Organization Strengthening, Membership Growth, Broadened Public Relations Program, Greater Aid through Active Subject Matter Committees, are Among Projects Facing New FPRS Executive Board.**

Kenneth G. Chesley, Director of Research, Crossett Lumber Company, Crossett, Arkansas, has headed the administration of the Forest Products Research Society since the recent annual meeting in Milwaukee. As new president, serving through the next annual meeting at Memphis, Tennessee next June, Chesley will have working with him a number of carry-over members of the Executive Board. These include, Fred Armbruster, Dow Chemical Co., Seattle; Moss B. Christian, Chicago Mill & Lumber Co., Tallulah, Louisiana and W. B. Wilkins, Consultant, Ridgewood, N. J. Successors to offices of president-elect, vice president, Northcentral, Southwest and Southeast regional board members have been announced at the Milwaukee meeting.

**KENNETH G. CHESLEY, 1951-53 president of Forest Products Research Society.**

### Retiring Board Members

A vote of thanks by the members and by the industry has been accorded to retiring members for their efforts and success in bringing the Society to its present strong position of service to industry. Members leaving the Board include Ralph H. Bescher, Koppers Co., Orrville, Ohio, and new president of A.W.P.A. Bescher also served as General Chairman of the Milwaukee meeting.

L. J. Carr, General Manager, L. J. Carr Co., Sacramento, Cal., and R. H. Hertzler, U. S. Dept. Agriculture, Washington, D. C. are the two other retiring board members. Carr is running for vice-presidency. R. D. Pauley, Weyerhaeuser Timber Co., retires from vice-presidency to run for president-elect; and Roy M. Carter, North Carolina State College, as past-president, automatically remains on the executive board.

With recent announcements of the activation of an Ohio Valley Section and of the formation of an Eastern Canadian Section, the total number of active FPRS Sections is brought to 13. The significance of the increase will be reflected in the increased local meetings to be held this Fall. Another result will be wider dissemination of data coming out of such meetings.

Still other forward steps in the program of broadening the base of section operations are the inauguration of section newsletters, produced by the sections themselves, and the development of a uniform "Manual for Section Operation." Sections which have already instituted newsletter service to their members include Florida-Georgia-Alabama, and Midwest.

**FPRS COMING EVENTS**

***Midwest Section*** **— Will hold one-day meeting in early August at Madison, and U. S. Forest Products Laboratory. The big fall meeting is scheduled for Clinton, Iowa.**

***Ohio Valley*****—first meeting of this section planned for Louisville area late September.**

***Florida-Georgia-Alabama Section*** **— To meet at Radium Springs, Florida for 2-day annual meeting in October.**

***Pacific Northwest*****—To meet at Vancouver, B.C., early November.**

***Other proposed Fall Meetings —Deep South*****—At L.S.U., Baton Rouge, La.**

***Northeast Section*** **— At New York City, N.Y.**

***Great Lakes Section*****—Detroit is being considered.**

## Retiring 1951-52 FPRS Board Members. Some Will Go On To New Positions in Society Affairs

R. D. PAULEY | L. J. CARR | R. H. BESCHER | R. H. HERTZLER | J. H. HAMILTON

# FPRS Forum

**The Problem:**

**What glue will give good joints in oak? We manufacture wood parts for oak lamp stands and are having great difficulty with the opening of the glue joints. We have tried various glues but nothing seems to stick.**

**The Answer:**

There are many glues that will give strong durable joints in oak, as well as in other woods, when they are properly used. Conventional animal glues, casein glues, and urea-resin glues will all give joints that are stronger than the wood if good technique is followed in their application. Other synthetic resin glues may also be used but, as a rule, their higher price is a disadvantage. Some of the factors that must be properly controlled to insure satisfactory results are discussed below.

First of all, the wood should be uniformly dried to a moisture content of seven percent in order to serve satisfactorily in products for interior use, such as furniture, lamp stands, and the like. Wood can be glued successfully, of course, at higher or lower moisture contents but there will be least trouble with shrinking or swelling of the wood in the finished article in use if it is at the right moisture content when glued. In the northern half of the United States and in Canada, where the humidity in heated houses gets very low in winter, wood loses moisture and shrinks. The moisture content may get as low as four percent. In the summer, on the contrary, the buildings are unheated and the humidity within our dwellings is generally much higher than in winter. This causes the wood to absorb moisture from the air and swell. With high humidities over long periods the moisture content of the wood in houses get as high as ten percent or, in extreme cases, even higher. When articles for indoor use in the cold climates are manufactured at about seven percent moisture content, they shrink less in winter or swell less in summer than those made at higher or lower moisture contents, and thus give greater satisfaction.

The wood surfaces to be joined should be smooth and flat so that they fit perfectly, before the glue is applied. With some soft, weak woods, and in the production of lumber cores that are to be veneered subsequently, the smoothness of the surface is less critical than with strong, hard woods like oak, maple beech, birch, and some others. In making strong, tight joints

---

This service covers forest products industry problems which pertain to research development, production or utilization in all fields of the industry, from logging through finishing. Specialists in these respective fields give practical answers to specific problems sent in to this Forum. These should be addressed to the FPRS Forum Editor of Wood & Wood Products.

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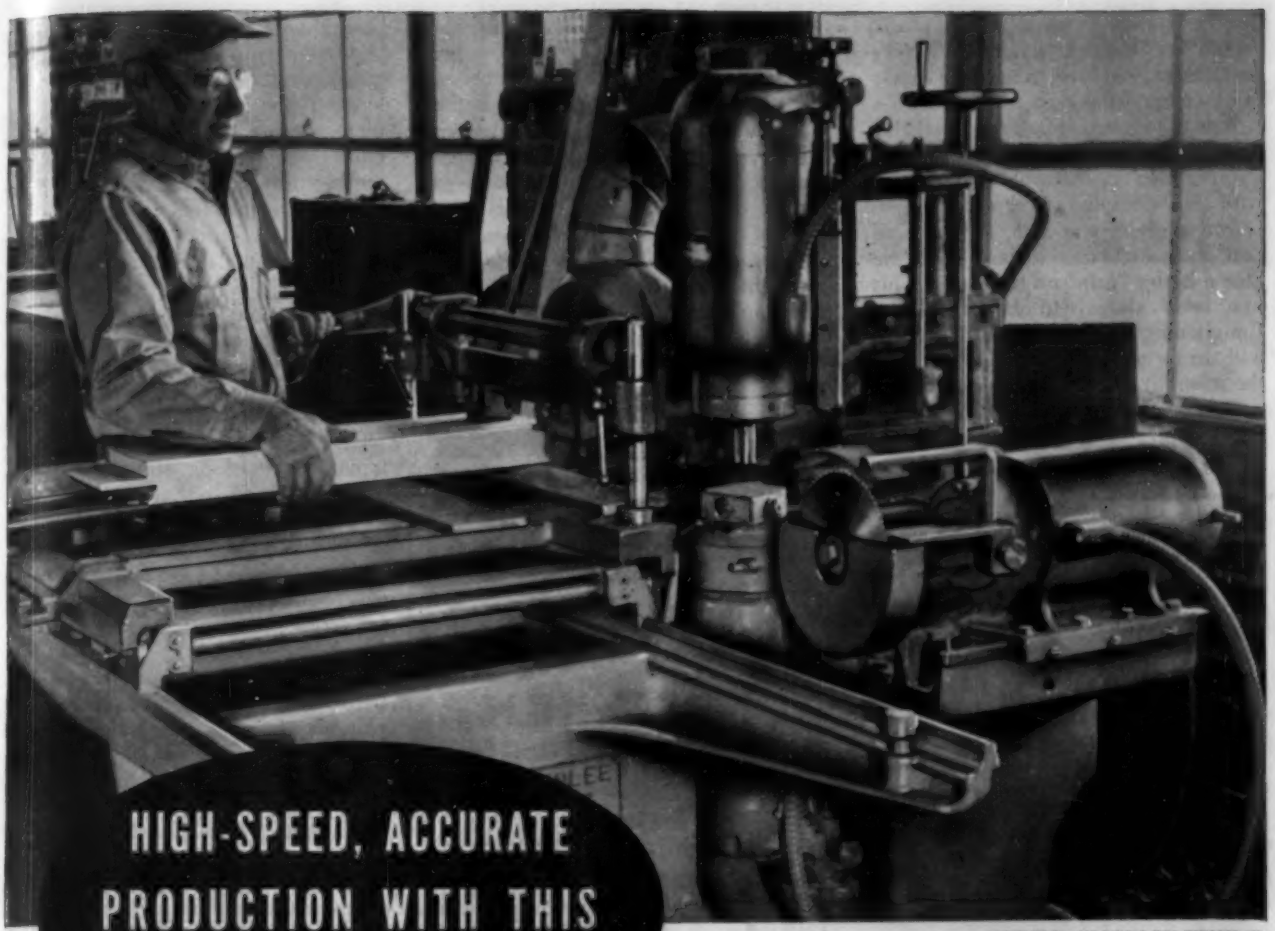

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in these dense woods, the pieces should be planed or jointed to a very smooth surface, free from knife marks or other imperfections.

It was formerly supposed that glue joints in very hard woods could be improved by roughening the surfaces with coarse sandpaper or other means before applying the glue, in the belief that the roughened surface gave the glue a better "grip" on the wood. This has been shown to be a fallacy. Roughening a good smooth surface will do no good but may do harm to the strength and fit of the joint.

Once the surfaces have been properly prepared, gluing should not be longer than 8 hours and preferably less. The longer the delay between surfacing and gluing, the greater is the likelihood that the exposed surfaces will cup slightly, or distort, or collect dirt or grease, all of which tend to reduce the strength of the joints.

Select a glue that has the working properties you prefer and is made by a reputable manufacturer. Then mix it and apply it strictly according to the manufacturer's instructions. Hot animal glue sets quickly after it is applied to the wood and may require more care than some other glues in assembling the parts and getting them under pressure promptly. But many manufacturers prefer animal glue and have learned how to handle it with complete success. Casein glues and urea glues permit somewhat longer assembly time than animal glue and are otherwise convenient to use but they, too, are not proof against improper use conditions.

Get the glue joints under pressure within the time specified by the manufacturer of the glue. If high pressure is applied too quickly after the glue is spread, too much of the glue may be squeezed out of the joint and a "starved" joint may result. If pressing is delayed too long, some of the glue may have dried so that it is impossible to get good adhesion between the adjacent surfaces.

A pressure of 150 to 200 pounds per square inch of joint area is about right for oak but it must be applied uniformly over the entire surface. Good cauls or cover boards should be used between the gluing clamps or press plates and the pieces being glued to spread the pressure. They should be clean and of uniform thickness. Uneven cauls, nonuniform thickness of glued parts, infirm presses, or distorted clamps can produce high pressure in some spots and low pressure, or absence of pressure, in others and cause open or weak joints. If something is crooked, wobbly, or undependable, see that it is corrected.

Make sure that the pressure is not too high or too low. If a hydraulic press is used, calculate the amount of gauge pressure required to give you the correct pressure in pounds per square inch over the joint area being glued, then test the gauge on your press to see that it reads correctly. Gauges get out of order sometimes and may be very misleading. They need to be checked occasionally and kept in good adjustment. With hand-tightened clamps, torque wrenches can often be used that will indicate the pressure applied. Technical skill and know-how are required, however, to determine the amount of pressure that should be applied to the torque wrench in order to provide the required unit pressure on the glue joint. In the absence of any method of determining the pressure applied, the appearance of the glue squeeze-out is a useful indication to skilled workmen but it can be deceptive and is not subject to good technical control.

Leave the glue joints under pressure long enough to set thoroughly and be safe to handle before releasing the pressure. This may require 4 to 8 hours, or overnight. Follow the glue manufacturer's directions.


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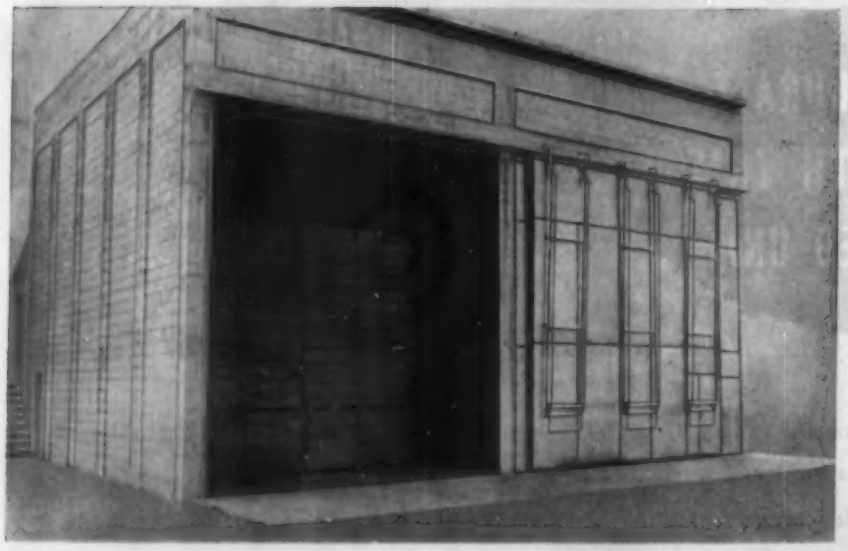

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**3. Diehl No. 890 Tapeless Veneer Splicer**—Applies glue and splices veneers under heat and pressure to tight invisible splices; easy to operate, simple to feed. Splices up to 3/16″ veneer at speeds up to 85 feet per minute.

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**5. Diehl No. 660 Glue Jointer and Edge Moulder**—4 feed-speeds; up to 100 feet per minute of precision finished joints or mouldings. Handles work up to 4½″ thick—infinite width or length. Easy changeover; simple to operate.

**6. Diehl No. 750 Straight Line Glue Joint Rip Saw**—Standard of comparison throughout the industry. Gives highest speed of all precision heavy-duty rip saws; makes open or hollow glue joints. Feed speeds as fast as 250 feet per minute. Handles ⅛″ to 4¼″. Other models available—No. 55 and No. 33.

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## Veneered Panels

*(Continued from page 46)*

set of typical load-deflection curves "with" the face veneer grain is shown in Fig. 6. The tests show that the hardboard core panel excels plywood in strength, stiffness and toughness, these properties being compared in the direction of greatest strength.

As an additional check on strength, the laboratory panels were subjected to a puncture test. This test was made by dropping a ten pound spear with a conical point on the center of 12 x 12-inch panels supported on the edges. The spear was first dropped from a ½-inch height, and the height of drop was then increased in ½-inch increments until the spear penetrated through the panel. The average maximum heights of drop were 8.0 inches for the 3/16-inch plywood, 9.8 inches for the ¼-inch plywood, and 8.6 inches for the ¼-inch panel with the hardboard core. In this test, the hardboard core was somewhat weaker than the veneer core of the same thickness. However, the 3-ply panel with the hardboard core has a resistance to puncture which is sufficient for furniture applicatiin, as shown by the comparison with 3/16-inch plywood.

Several tests were run to determine stability and resistance to checking and edge splitting when the panels are exposed to extremes of atmospheric humidity. Permanence of the glue bond and resistance to peeling were also tested. Standard type 11 glue line tests were made on samples from all test panels. This test, described in Douglas Fir Plywood Commerical Standard CS 45–48, par. 14A, interior type, consists of ten cycles of 4 hours submersion in water, followed by 20 hours drying at room conditions. After this ten-cycle test, the samples were inspected for delamination. All panels, with both poplar and hardboard core passed this test.

TABLE 2.—TRANSVERSE BENDING TEST RESULTS, 3-PLY VENEERED PANELS

| Panel | A | B | C |
|---|---|---|---|
| Core | Hardboard | Poplar | Poplar |
| Nominal Thickness, Inches | 1/4 | 3/16 | 1/4 |
| Transverse Breaking Load, Lbs. (1) | 43.6 | 16.5 | 34.1 (4) |
| Stiffness, lbs./0.1 in. (2) | 8.2 | 3.5 | 5.5 |
| Toughness, in.-lbs. (3) | 27.4 | 16.4 | 23.1 |

(1) With the surface veneer grain across supports, 10 inch span, sample 1 inch wide, loaded at 0.5—0.7 inches/minute. Check tests made with 3-inch wide Samples gave approximately the same results.

(2) With the surface veneer grain parallel to edges of Supports, same sample size and loading rate as (1). Stiffness reported as pounds /0.1 inch of deflection before the proportional limit.

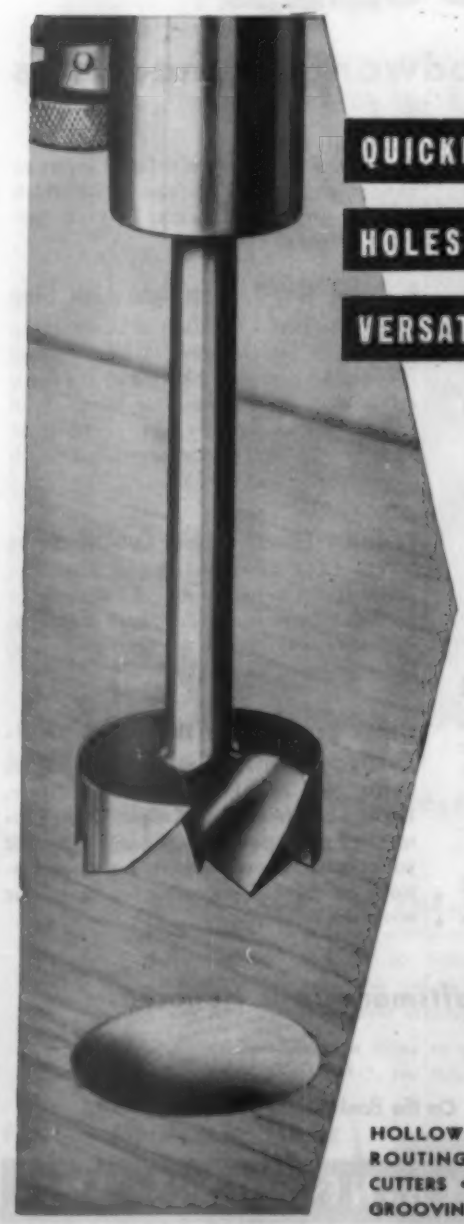
(3) With the surface veneer grain parallel to edges of supports, size and loading rate as (1). Toughness reported as area under the load-deflection curve to rupture.

(4) This value for breaking load is across the grain. The "with grain" value is 25.5 lbs.

In addition, samples from each test panel were brought to equilibrium at 90% relative humidity, and then oven-dried to constant weight at 130° F. After this treatment, the samples were carefully inspected for face veneer checking, peeling away of the veneer, delamination, splitting, and any other failure of the construction that may have occurred. All panels, both with hardboard and with poplar cores passed this test satisfactorily.

The dry bond strength was tested by inserting a sharp knife blade into the glue lines in an effort to delaminate the panels along the glue line. All panels, both those having hardboard and poplar cores, showed no progressive separation along the glue line.

The final laboratory evaluation tests made were measurements of warp of the 3-ply panels after they were brought to equilibrium at room conditions, and at 30% and 90% relative humidity. Two warp characteristics of the panels were measured, which we have called "median warp" and "twist". These tests were run on one foot square specimens, using three

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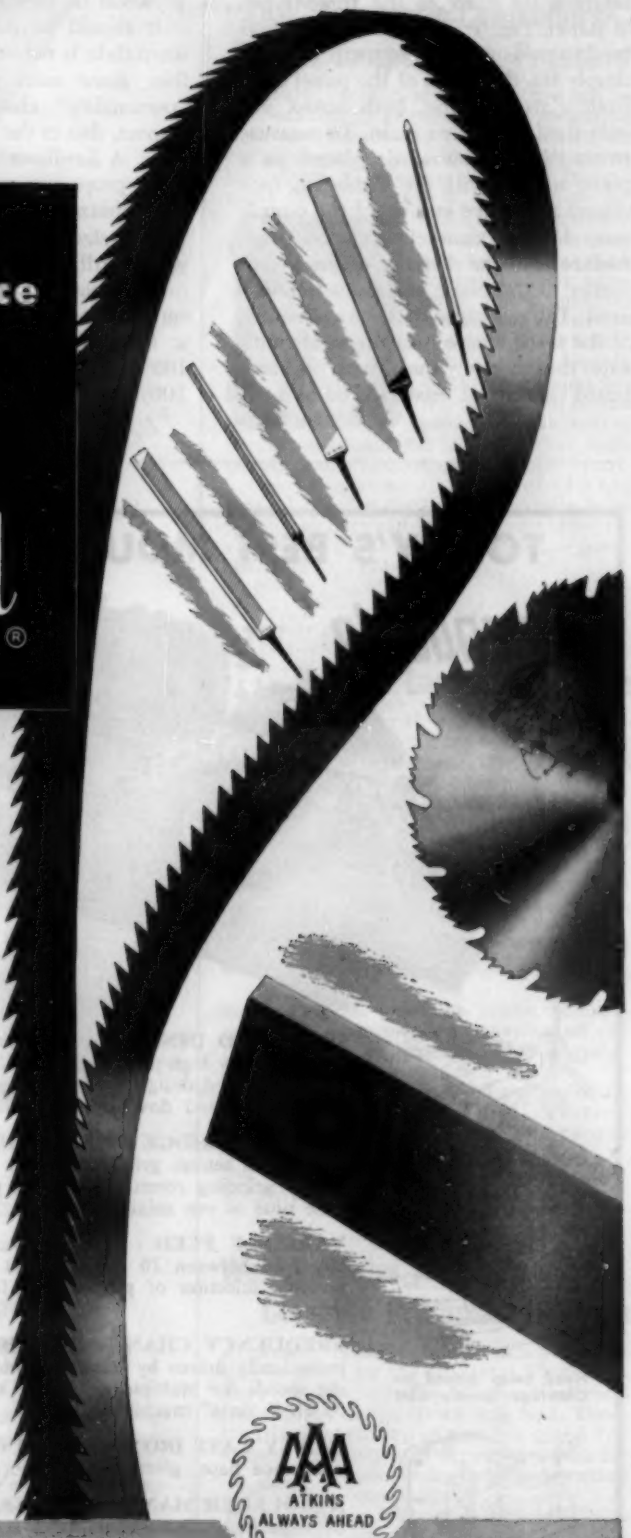

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samples for each of the three types of panel. Fig. 7 illustrates the method used to measure median warp, it being simply the distortion of the panel edge from a straight line, both across and with the face veneer grain. To measure twist, the specimen was placed on a plane surface with the mahogany face veneer up. Three corners of the sample were held in contact with the plane surface, and the distance of the fourth corner to the plane surface was measured. Table 3 gives the average results of the tests. These measurements indicate that 3-ply panels with a hardboard core are at least as good as 3-ply plywood in their resistance to wrap.

It should be pointed out that this warp data is not necessarily reproducible, since each panel has its own "personality" characteristics in this respect, due to the grain pattern of the plies. A hardboard core with its non-grain properties would certainly tend to minimize warpage.

Full size 4 x 8 foot 3-ply panels with hardboard cores were laminated in a commerical plywood mill. Excellent quality panels were produced, with a urea-formaldehyde glue extended 100% with wheat flour, though the 100% extension may not be desirable for some applications. This mill test brought to light a decided advantage of the hardboard core construction. The hardboard core panels were markedly smoother and flatter than comparable plywood panels made under the same conditions. It was observed that the panels required only one pass through the drum sander, as compared to multiple passes for comparable plywood. This is one of the practical advantages accruing from the use of a smooth hardboard of uniform thickness.

TABLE 3.—WARP OF 12 x 12-INCH, 3-PLY PANELS

| Panel | Core | Nom. Thick. (inches) | Avg. Median Warp With Grain (inches) | Across Grain (inches) | Avg. Twist (inches) |
|---|---|---|---|---|---|
| | | Room Conditions | | | |
| A | Hardboard .. | 1/4 | .000 | .005 | .000 |
| B | Veneer ..... | 3/16 | .010 | .042 | .021 |
| C | Veneer ..... | 1/4 | .005 | .003 | .005 |
| | | 30% Relative Humidity | | | |
| A | Hardboard .. | 1/4 | —.005 | .040 | .036 |
| B | Veneer ..... | 3/16 | .031 | .109 | .250 |
| C | Veneer ..... | 1/4 | .023 | .030 | .021 |
| | | 90% Relative Humidity | | | |
| A | Hardboard .. | 1/4 | —.041 | .016 | —.011 |
| B | Veneer ..... | 3/16 | —.070 | —.003 | —.109 |
| C | Veneer ..... | 1/4 | —.064 | —.016 | —.027 |


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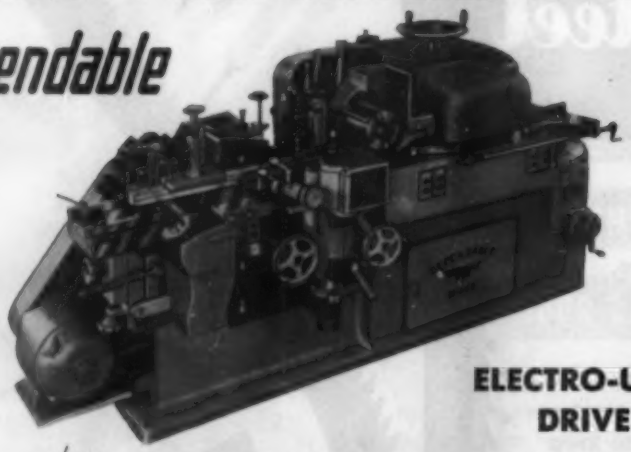

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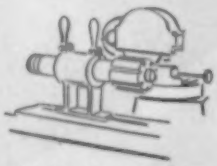

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## Other Advantages

Several other production advantages should also be noted. The preparation of the veneer core is completely eliminated. It is not necessary to grade, clip, edge glue and precondition the hardboard core. The hardboard, unless exposed for some time to extremely high or low humidity, contains moisture in the right range for gluing without preconditioning. Handling the hardboard cores, particularly through the glue spreader, is considerably more convenient. The effect of these production features is a simplified process, accompanied by real savings in labor, supervision and material.

On the disadvantage side of the picture, some fabricators may regard the greater weight of the cores as being objectionable. For example, the 3-ply, ¼-inch, hardboard core panel is about 50% heavier than the ¾-inch plywood. While this will not cause a great increase in the weight of furniture, it will affect the shipping cost of the veneered panel from a plywood mill to the furniture manufacturing plant. On the other hand, some furniture distributors regard a slight increase in weight as an asset indicating greater solidity and strength. Certainly, the increased trend in the use of hardboard cores indicates that the improved quality and manufacturing advantages more than off-set the increased weight.

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## "Degrading"

*(Continued from page 26)*

resorting to drying to lower moisture contest levels.

The volume tested of each charge was approximately 8960 feet, a size unit which permitted the accumulation, grading and charging time of each crib in one day. Thus any influences on grade which often attend prolonged storage in solid package prior to stacking and drying were kept to a minimum. Furthermore, cool weather helped to keep uncontrolled pre-drying in the pile to a minimum. The effects of seasoning degrade are minor so far as No. 4 and 5 common are concerned. Therefore these grades were eliminated from this study. Any pieces showing mismanufacture, such as excessive wane etc., were thrown out. Non-seasoning defects, such as pitch, pitch-pockets, skip, and so forth, appearing after surfacing, were ignored in the final grading.

To eliminate variables, all lumber was surfaced on the same planer at the feed rate of 300 f.p.m. The moisture content of each board, as indicated by a resistance type electrical moisture meter, was tallied at this time. Then, each board was tallied on its original rough green grade, and its final dressed dry grade. Seasoning defects were tabulated when found to be serious enough to lower the grade.

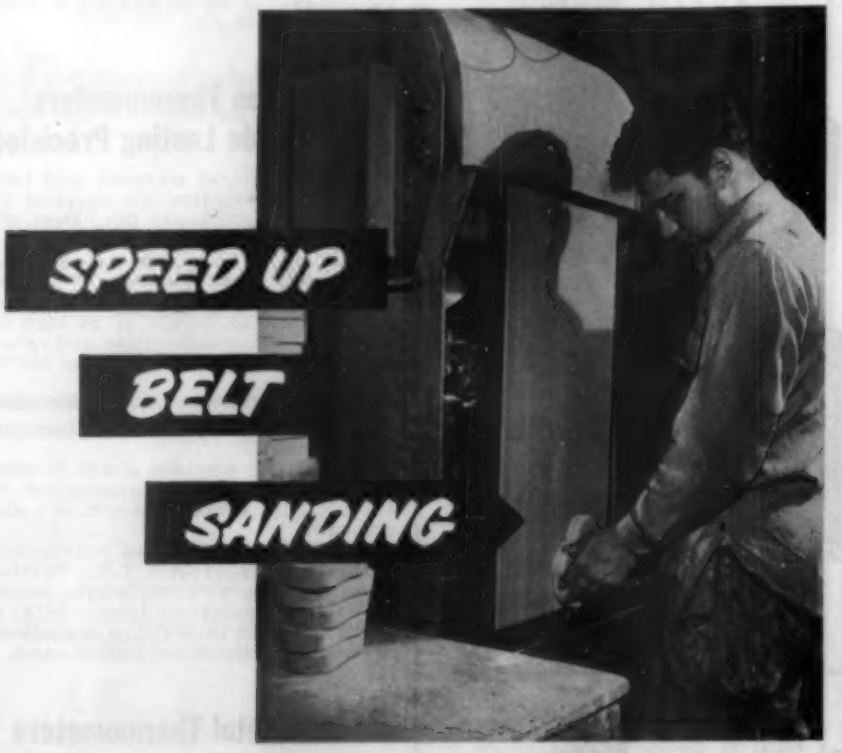
### Test Results

Progressively higher grade losses accompanied progressively lower moisture content readings. In the 12 inch width, checked knots caused much of the degrade. This defect caused the most degrade in No. 1 common and progressively less in the lower grades. In 8 inch widths, roller split proved to be more serious than other factors. Here again the higher grades showed the greater losses. The proportion of stock degraded by loosened knots at low moisture content was not excessive. Factors other than moisture content apparently influenced this condition.

At lower moisture levels surfacing caused more broken edge knots and torn face knots than at higher moisture contents. In stock surfaced at low moisture levels, the black knots were tigher in sap wood than in heart wood. Where spike knots had any bark showing on the face, the feathered end of bark usually sloughed away at low moisture levels and spoiled the appearance enough to lower the grade in some instances.

The accompanying charts show the percentage of degrade caused by various defects. The graph (Plate 1.) shows the monetary loss by degrade as related to moisture content and shipping costs based on October, 1950 F.O.B. mill price levels. The values showing increased shipping cost with a rise in moisture content from 8% to 14% were based on a freight rate of $1.08 per 100 pounds from Spokane to

*(Continued on page 75)*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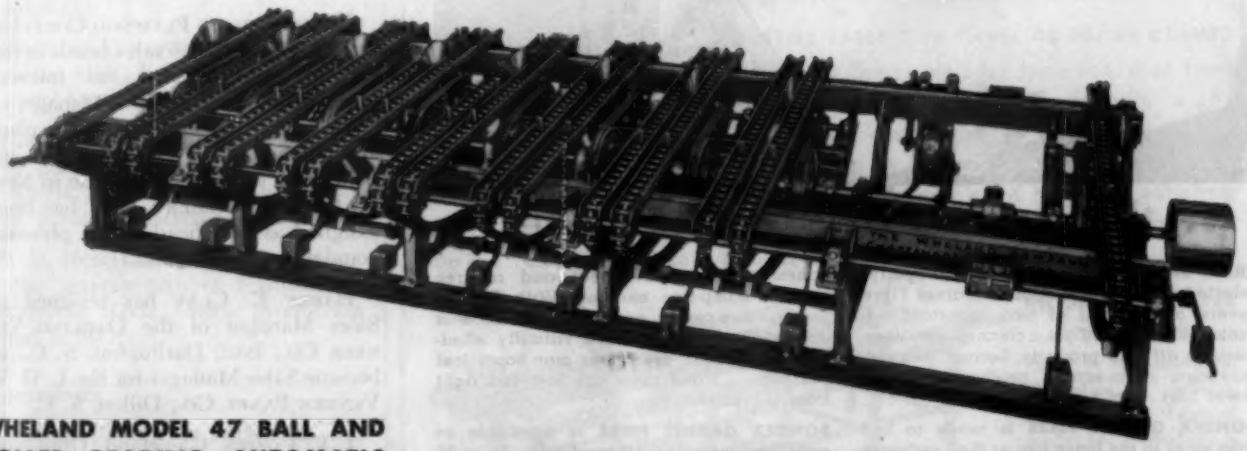

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# NAMES and EVENTS

### *Personnel Changes*

B. F. CHEATHAM, General Manager of the GEORGIA-PACIFIC PLYWOOD CO. operations at Cleveland, S. C., has been appointed General Manager of the company's Mississippi valley operations.

W. A. MEISNER has been appointed to succeed the late J. H. Cozort as Logging Superintendent of the PICKERING LUMBER CO., Standard, Cal.

JOSEPH E. MUCKLEY, Seattle, Wash., has been appointed Vice-President and Treasurer of the SIMPSON LOGGING CO., Seattle Wash.

JESSE ANDREWS, General Counsel and a Director of THE LONG-BELL LUMBER CO. for 30 years, was elected Chairman of the Board of Directors.

CHARLES N. CORY is named Superintendent of Logging for the GARDINER LUMBER CO., and T. RAY KILLIAN succeeds Cory as Superintendent of the LONG-BELL operation at Ryderwood, Wash. Cory takes over the duties of R. R. VAN ORDEN, who has resigned from the Gardiner operation.

ROBERT N. MILLER has been appointed Vice-President of the OLYMPIC STAINED PRODUCTS CO., Seattle, Wash.

JOE H. HOWELL, sales consultant, has been named Vice-President in charge of advertising and sales promotion for the AUTO-NAILER CO., Atlanta, Ga.

R. R. RICHARDSON has been appointed a general line salesman in the Southern Illinois and St. Louis Territory for the WOOD CONVERSION CO., St. Paul, Minn.

JAMES H. STRYKER, Executive Vice-President of the PERKINS GLUE CO., and a veteran of almost two decades in the glue business, has been elected President of the Lansdale, Pa. firm.

HARRY C. FIDLER is appointed Vice-President and General Manager of the BLAIR-VERMONT PLYWOOD CO. He will make his headquarters in North Troy, Vermont. The company has plants in North Troy and Hancock, Vermont.

UNITED STATES PLYWOOD CORP. has appointed three new sales heads in the New York City area, as follows: JERRY KAYNE was named Manager of the Brooklyn-Queens distribution plant at Glendale. I. E. JATLOW was appointed to succeed Mr. Kayne in New Hyde Park. HERBERT TEPE has been assigned as new head in the plywood company's Newark unit.

HARRY E. CLAY has resigned as Sales Manager of the DARLING VENEER CO., INC., Darlington, S. C., to become Sales Manager for the L. D. T. VENEER PANEL CO., Dillon, S. C.

J. K. COZIER, Cleveland, Ohio, and S. S. COOK, Chicago, Ill., have been elected to the Board of Directors of CURTIS COMPANIES INCORPORATED, Clinton, Iowa.

ROSWELL D. CARPENTER has been appointed General Manager of the CUNNINGHAM MACHINERY CORP., Shreveport, La.

JACK L. WARE is named Sales Manager of the AMERICAN EXCELSIOR CORPORATION, Chicago, Ill.

FRED A. COLLINGE has been elected Chairman of the Board, and JOHN A. COLLINGE elected President and Gen-

...that can be two-ways better!

**DRUM SANDERS** equipped with properly-selected Jewel Brand Bondex Garnet Fibre covers assure you of two important advantages: First, you get a cleaner, smoother finish on *all* your products. Second, you get maximum drum-sander productivity at a lower cost. Here's why.

**BONDEX GARNET FIBRE** is made to last from eight to ten times longer than ordinary garnets. It more than meets the demands of continuous, high-speed sanding operations. Sharp, tough Jewel Brand garnet is evenly cemented to a strong, tear-resistant fibre backing with Bondex — the powerful adhesive that resists heat and assures smooth, bump-free sanding. With Bondex Garnet Fibre covers, production breakdowns due to "broken felts" are virtually eliminated . . . there are fewer man-hours lost per job . . . and costs are lowered right from the start.

**BONDEX GARNET FIBRE** is available at your distributor's in 50 yard rolls, 24 or 36 inches wide. Ask him about it — or write direct and get the full facts on the complete line of Jewel Brand Woodworking Abrasives. Abrasive Products, Inc., 553 Pearl Street, Braintree 85, Mass.

SHARPER, TOUGHER

Jewel Brand COATED Abrasives

CUT COSTS!

eral Manager of The G. M. Diehl Machine Works, Inc., Wabash, Ind.

Plaskon Division of the Libbey-Owens-Ford Glass Co. will come under the direct executive supervision of John D. Biggers, President, as a result of the recent retirement of D. H. Goodwillie, former Executive Vice-President, who has heretofore directed its activities. At the same time, W. W. Knight, Jr., General Manager of Plaskon, has been named a member of the Management Policy Committee of Libby Owens.

Carlton Smith Industries, Inc., Bearden, Ark., has liqudated as a corporation, and the company continues its operations as a Partnership under the name: Carlton Smith Industries. The firm now consists of two partners, Carlton Smith and Lillian Frances Smith.

### *New Firms*

Albion Creek Logging Co. is a new $200,000 corporation that has just purchased a tract of 59,000,000 feet of timber near Forks, Wash., W. C. Abel, Aberdeen, Wash., and the Nettleton Timber Co., Seattle, Wash., are owners of the new firm.

Grenada Box Co., Inc., Grenada, Miss., has been granted a charter of incorporation, with a Capital Stock of $51,100.

Meridian Woodworking Co., Inc., Meridian, Miss., has been formed with a Capital Stock of $100,000.

The Candid Corporation is a new wood products concern which began operations last month in Jamestown, Tenn. James K. Smith is President.

O. D. Honaker is building a plant for the manufacture of furniture in Holdenville, Okla., with production to start in 60 days.

### *Expansions*

Georgia Pacific Plywood Co. has increased its staff in the company's Northwest headquarters in Olympia, Wash. to handle procurement of Western lumber for their wholesale warehouses throughout the country.

Aetna Plywood & Veneer Co. of Chicago, has opened a new warehouse in Grand Rapids, Mich., which provides 26,250 square feet of floor area, double the size of the former building.

Davidson Plywood & Lumber Co. has opened a new warehouse and office at 854 Richards St., Salt Lake City, Utah., and another one at 3225 Bean St., San Diego, Cal.

National Plywoods, Inc. has recently completed a new warehouse in Muskegon, Mich., with Harold T. Young as Manager.

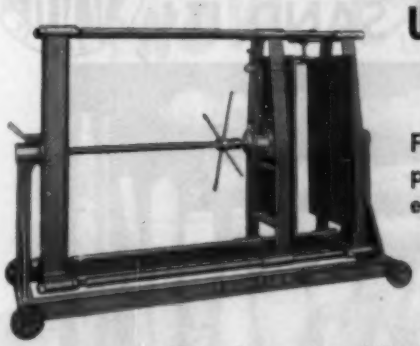
Monsanto Chemical Co., Western Division, announces the opening of three new branch sales offices, as follows: Dallas, Texas, Atlanta, Ga. and Cleveland, Ohio. The initial Sales Representatives of the new offices are Joseph W. Schinzing, Jr., Joseph Phalon, and Edward Kuntz, respectively.

United States Plywood Corp., New York, N. Y., has opened sales and distribution units as follows: West Pittston, Pa., managed by Charles A. Mack, Jr.; Columbus, Ohio, with George E. Young as Manager. The company has also opened a new central control laboratory in New York City with Charles B. Hemming, Chief Chemist, who is named Technical Director to head the company's complete research and development program.

Building Allotments for forest industry projects has recently been granted by the NPA for the following firms: Weyerhaeuser Timber Co. to build plants in Springfield, Ore., Kraft


**a UNION machine . . .**
**TO MEET ANY WOOD GLUING NEED**

UNION SERVES OVER 2,000 SATISFIED CUSTOMERS



**UNION *Air-Operated Revolving Case Clamp**

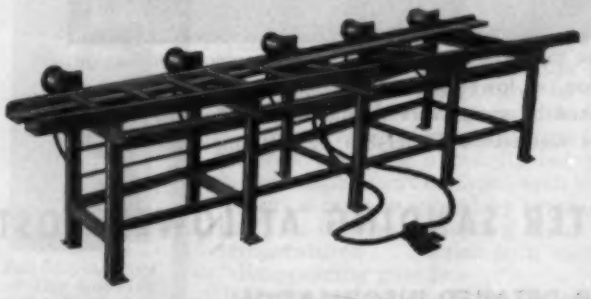
WITH SELF-ALIGNING BALL BEARINGS

Fast, dependable, accurate. Back platen is fixed. Operating platen is equipped with oilite bronze bearings. Clamping frame is cradled in self-aligning ball bearings. Frame may be revolved to any angle or locked in any position.

*May be equipped for hand operation if desired.

**UNION 1100 SERIES TABLE-TYPE PANEL OR FRAME CLAMPS**

The air-operated 1100 Series includes table-top sizes from 30" x 30" to 56" x 104". Maximum opening from 26" x 26" to 52" x 100". Average clamp has two side and two end air pressure units but can be equipped with more if desired. Tables have planed surfaces with extra holes for adjusting the back stops. Height of high pressure plate and high back stop is 2" unless otherwise specified. Standard height of table, 33".



**UNION Air-Powered Ladder Clamp**

Hand or foot-operated. Operation is uniform, fast, positive. Tapered model (as illustrated) is 14' long — equipped with five 4" air cylinders. Pressure bar has 4" stroke. Maximum clamp opening is 12" at one end and 36" at the other. Assembles any length ladder up to 14'. The straight model is 20' long—equipped with four 8" air cylinders. Pressure bar has 8" stroke. Maximum opening, 31".

Write for data on the complete Union line. Union agent's name in your territory supplied on request.

**UNION TOOL CORP.**
312 EAST MARKET STREET
WARSAW, INDIANA, U. S. A.

*Write for your free copy, "The How's and Why's of Wood Gluing," written by Thomas D. Perry.*

USERS SAY UNION CUTS COSTS — SPEEDS PRODUCTION

container board-$2,503,753; lumber-$5,111,250; Klamath Falls, Ore., forest products-$174,000; Everett, Wash., Bleached Kraft market pulp-$19,925,000; Longview, Wash., Bleached Kraft nitration pulp for explosives-$13,762,335.

ALASKA PLYWOOD CO., Juneau Alaska, Plywood—$283,500.

SANDWELL & CO., INC., Lowell, Wash., paper—$3,100,000.

POTLATCH FORESTS, INC., Lewiston, Idaho, paper for food container board—$6,100,000.

ST. HELENS PULP & PAPER CO., St. Helens, Ore., Kraft paper—$7,373,802.

CROWN ZELLERBACK CORP., West Linn, Ore., pulp, paper and converted paper products—$1,933,762, Camas, Wash. pulp and paper—$29,685.

RAYONIER, INC., Port Angeles, Wash., bleached sulphite pulp—$79,200; Shelton, Wash., purified wood cellulose—$135,771.

BROOKINGS PLYWOOD, INC., Brookings, Ore., plywood—$175,000.

OREGON FIBRE PRODUCTS CO., Pilot Rock, Ore., building materials—$3,800,000.

CERTIFICATES OF NECESSITY for accelerated tax amortization of new or expanded defense facilities with a proposed investment of more than $15 million were received by 12 Pacific Northwest industries for the period of March 27 to April 3. The certificates were issued to the following firms:

THE GARDINER LUMBER CO., Gardiner, Ore., plywood—$1,949,890.

ROSEBURG LUMBER CO., Roseburg, Ore., plywood—$1,667,323.

PUGET SOUND PLYWOOD, INC., Tacoma, Wash., plywood—$237,896.

EVERETT PULP & PAPER CO., Lowell, Wash., pulp, paper and paperboard—$2,940,000.

WEST COAST PLYWOOD CO., Hoquiam, Wash., plywood—$195,138.

MENASHA PLYWOOD CORP., North Bend, Ore., plywood—$257,434.

WILLAMETTE BUILDERS SUPPLY, Aumsville, Ore., plywood—$447,186.

MAR-LINN TIMBER CORP., Roseburg, Ore., plywood—$815,301.

WEYERHAUSER TIMBER CO., Springfield, Ore., plywood—$2,296,000.

ASTORIA PLYWOOD CORP., Astoria, Ore., plywood—$816,866.

BROOKINGS PLYWOOD CORP., Brookings, Ore., plywood—$1,231,271.

MULTNOMAH PLYWOOD CORP., Portland, Ore., plywood—$626,434.

A L. FADER & CO. has moved their operations to new and larger quarters, including their offices and display rooms, at 223 N. Desplaines Ave., Chicago 6, Ill.

The BORDEN COMPANY has opened a new chemical plant at Demopolis, Ala., the first in the Southeast to manufacture formaldehyde, synthetic resins and hexamethylenetetramine.

BEN G. BARNETT, purchaser of the AIR-LITE DOOR MANUFACTURING CO., Jacksonville, Ark., has announced plans to reopen the plant and add other lines to its production.

The IMPERIAL DESK CO., Evansville, Ind., is nearing completion of its new building program that will add better than 12,000 square feet of floor space to the productive capacity of the plant.

### *Associations*

B. A. MAYHEW of the FORDYCE LUMBER CO., Fordyce, Ark., has been re-elected President of the SOUTHERN PINE INSPECTION BUREAU.

GEORGE H. KUBES, President of THE AMERICAN BOX CO., with plants at Marion, S. C. and Cleveland, Ohio, has been elected a Director of the WIREBOUND BOX MANUFACTURERS ASSOCIATION, Chicago, Ill.


IF IT'S TURNED, A
NASH CAN SAND IT!

Nash Sanders are the answer to the need for increased production, quality production, at lower cost. Nash Sanders are "standard of the world," backed by many years' outstanding production records, and have always maintained leadership by constant improvement.

FASTER, BETTER SANDING AT LOWER COST

Write FOR DETAILED INFORMATION...
SEND SAMPLE OF STOCK FOR DEMONSTRATION

Beaded Turning Sanders, Spool and Bobbin Sanders, Automatic Round Stock Sanders, 4 and 12-Spindle Universal Power Feed Boring Machines and other special machines.

J. M. NASH COMPANY
2359 N. 30th Street, Milwaukee 10, Wisconsin

RAY C. DUBRUCQ, Vice-President and Special Washington Representative of the ROCKWELL MANUFACTURING CO., Pittsburg, Pa., has, for the third consecutive time, been re-elected

**Ray C. DuBrucq**

President of the ASSOCIATION OF MANUFACTURERS OF WOODWORKING MACHINERY. We saluted Mr. DuBrucq in our March issue for his outstanding contributions to the woodworking industry.

President of the newly-formed AMERICAN INSTITUTE OF TIMBER CONSTRUCTION is WARD MAYER, of the firm of TIMBER STRUCTURES, Inc., Portland, Ore. The Board members are: CHARLES C. CALVERT of SUMMERBELL ROOF STRUCTURES, Los Angeles, Cal.; C. W. KNOLL of ROOF STRUCTURES, INC., Wilster Groves, Mo.; VAL GARDINER of MILLER-GARDINER FABRICATING CO., Monroe, Ore.; THEODORE C. COMBS of the ARCH RIB TRUSS CORP., Los Angeles, Cal. is Secretary-Treasurer and serving temporarily as Executive Manager. A headquarters office will be established soon in the Middle West or East.

### *Miscellaneous*

EDENS-BIRCH LUMBER CO., Corrigan, Texas, has sold its 50,000 acres of forest land to the CHAMPION PAPER & FIBRE CO., Pasadena, Texas, with a 20 year contract to harvest saw-log timber.

Fire destroyed the sawmill and power plant of the OZAN LUMBER COMPANY at Delight, Ark. The main plant of the company is at Prescott, Ark.

FOREST PRODUCTS HISTORY FOUNDATION, national repository of American forest history, has named JOHN W. LARSON of St. Paul, Minn., as its Business Records Manager, with offices in the MINNESOTA HISTORICAL SOCIETY at St. Paul.

KOPPERS COMPANY, INC., Pittsburgh, Pa., has established a fellowship at the UNIVERSITY OF PITTSBURGH to conduct a study to learn whether or not various strains of fungi can build up resistance to wood preservatives. The work will be under the direction of DR. KENNETH WERTMAN, Professor of bacteriology in the Department of Biological Sciences, who also serves the Koppers Research Department as a consultant.

AMERICAN WOOD PRODUCTS CORP., Marion, S. C., subsidiary of THE AMERICAN BOX CO., Cleveland, Ohio, is planning a plant-wide modernization program marking "25 years of Progress" in the company's history.

FOREST INDUSTRY COMMITTEE has been formed on a state-wide basis to promote tree growing and improved timber protection in South Carolina, as announced by J. E. MCCAFFREY, Georgetown, Chairman of the group.

SIMPSON LOGGING CO. has moved its offices in San Francisco, Cal. to 405 Montgomery St.

L. R. MATTSON, President of the GRAND RAPIDS BOOKCASE & CHAIR CO., Grand Rapids, Mich., announced

*that's right...* CERTUS is now FREEZABLE!

Ask for your copy of the booklet "The First Pair of Skis" by H. L. Prestholdt, Pres.

**You can order your supply of Certus Liquid Adhesive in normal quantities the year 'round.**

The latest advance resulting from Monite's continuous research is the improved Certus Liquid Adhesive that is not damaged by exposures to temperatures from 50 below zero to 120 degrees above.

You can order Certus and store Certus the year 'round without worrying about its being damaged and your being caught short or faced with loss of production.

Certus may be spread by brush, glue spreader or glue gun . . . it is quick setting under pressure and normal temperatures . . . dries to a clear film that makes a "disappearing glue line".

Certus is ideal for all common woods, plastics to wood, paper, cloth, and glass.

***Write for data sheet No. 502 giving complete information.***

TRADE MARK MONITE FOUNDED 1916

**MONITE GLUE COMPANY**

**1022 Monite Building., Minneapolis 11, Minn., U.S.A.**

Use a **VB hot press** With the New

**LOADING TABLE**

**for increased production on your veneering and laminating operations.**

The new loading table is featured on the Single (1) and Double (2) Opening "VB" Hydraulic Hot Plate Presses. This new improvement speeds up loading and unloading operations thereby increasing production.

Loading is alternated from side to side, one load readied on the table while one is being cured in the press. As the Automatic Timer opens the press the loading table is pushed through the press putting the new load in position and another curing cycle is started. Investigate this and other advantages of the "VB" Presses for your shop or plant.

***Write Today for full details.***

**V.B erthelsen ENGINEERING WORKS, INC.**

P. O. BOX 1423 • LOCKPORT ROAD • JOLIET, ILLINOIS

**Hundreds of applications prove HASSALL annular threads have GREATER HOLDING POWER**

Annular threads are used where greater grip is a "must" — in industries like shoe manufacturing, asbestos siding, underlay flooring for linoleum, pallet manufacturing, boat building, etc., etc. The stronger holding power of these threads should solve many a wood fastening problem, maybe yours! Save, too, by using fewer nails. Write for samples.

**JOHN HASSALL, INC.**

409 Oakland St., Brooklyn 22, N. Y.

Hassall ESTABLISHED 1850

that a new group of contemporary furniture that was introduced at the June Furniture Market, was designed by WILLIAM PAHLMANN.

REICHHOLD CHEMICALS, INC., has established a new technical service laboratory and offices for management, sales and office personnel at the company's Midwest Division (Argo) plant located at 7738 West 61st Place, Summit Ill.

U. S. FOREST PRODUCTS LABORATORY, Madison, Wis., will conduct a 6-day clinic in modern lumber drying methods July 7-12, 1952 at the plant of the MORGAN MANUFACTURING CO., INC., Black Mountain, N. C., for southern, eastern, and midwestern dry-kiln operators and lumber products manufacturers.

A corporate change has taken place, effective June 2, 1952, in the VONNEGUT MOULDER CORP., Indianapolis, Ind., with the retirement of ANTON VONNEGUT. The company has been taken over by its present personnel and will be known as the GRINDING AND POLISHING MACHINERY CORP. Officers of the newly-formed corporation are: R. W. SMART, President, O. S. DEHAVEN, Vice-President; I. W. BOSWORTH, Secretary and Treasurer. Mr. ANTON VONNEGUT will continue to serve as a member of the Board of Directors.

### *Deaths*

WILLIAM MCCLELLAN RITTER, 88, a prominent figure in the lumber industry for many years, died May 21 at his home in Washington, D. C.

C. HUSTON WALTER, 47, Lebanon, Ore. who had recently retired, died at Tuscon, Ariz. after a long illness.

MINOT DAVIS, who prior to his retirement a short while ago was Woods Manager of the WEYERHAEUSER TIMBER CO., Tacoma, Wash., died after a long illness.

GEORGE W. PITMAN, 87, owner and operator of the GEORGE W. PITMAN CO., shovel handle manufacturers, died at his home in Little Rock, Ark., May 18, 1952.

BURT COLDREN, retired Chairman of the Board of THE HALLACK AND HOWARD LUMBER CO., Denver, Colorado, died in that city May 8 at the age of 89.

THOMAS F. KELLEY, 70-year old superintendent of the F. E. PRINCE CO., Pittsburg, Texas, manufacturers of baskets and crates, died May 23, 1952.

# Patent Digest

by Royden C. Rinker

### Log Barking

R. D. Pauley and L. A. McCanna (to Weyerhaeuser Timber Co.) U. S. 2,576,967-8, Dec. 4. Barking veneer logs by impressing against the bark surface a radially directed compressive force sufficient to rupture the bond between the bark and the wood.

### Wood Splitting

J. H. Dagenais. U. S. 2,580,735, Jan. 1. A wood splitting machine including a travelling unit on rails adapted to carry wood to be split into splitting knives.

### Adhesive

L. E. Clark (to Borden Co.) U. S. 2,580,890, Jan. 1. Adhesive comprising phenol formaldehyde, rye flour, and sodium hydrosulfite.

### Drying Oils

J. C. Hillyer and J. T. Edmonds (to Phillips Petroleum Co.) U. S. 2,581,413, Jan. 8. Condensation of an unsaturated glyceride oil with an aliphatic conjugated polyolefin to produce a drying oil.

### Jointer

J. N. Fenner. U. S. 2,581,475, Jan. 8. Jointer comprising spaced tables, a rotary cutter head between the tables, one having a transverse slot across its outer end, a block slidable in said slot, a fence at one side of the table having a slot with a bolt passing therethrough for supporting the fence on the block.

### Inlaying

P. F. Skoog. U. S. 2,582,396, Jan. 22. A patched veneer sheet having secured therein a flat-faced patch the edges of which are flared.

### Molded Sawdust

F. Weyerhaeuser (to Rock Island Millwork Co.). U. S. 2,583,-618, Jan. 29. Applying a film of water to the surface of a metal sheet, covering the wetted surface with dry sawdust and heat-activatable binder, applying water to the top of the mix and pressing to form a moldable body.

### Tree Jack

M. L. Jacobs (to Jacobs Wind Electric Co.). U. S. 2,583,945, Jan. 29. Structure for felling trees comprising sliding sections arranged for extension or contraction, ground engaging means, means for engaging a tree above ground, and a jack mechanism.

### Power Saw

C. R. Hughart. U. S. 2,584,209, Feb. 5. A two-man portable power saw including a supporting frame having a loop-shaped slide mounted therein, a circular sawblade and a flexible shaft adapted for revolving the blade.

### Lumber Package

J. E. Stewart. U. S. 2,584,241, Feb. 5. A unit package of lumber reinforced and protectively coated for outside storage and shipment.

### Pike

C. Mitchell. U. S. 2,584,488, Feb. 5. Loggers pike including a staff, a spear at one end, a sleeve surrounding the staff adjacent to the spear and prongs on the sleeve for cooperation with the spear in holding a log.

### Sulfite Liquor

C. Uschmann (to Cascades Plywood Corp) U. S. 2,585,977, Feb. 19. Heating waste sulfite liquor to boiling and evaporating water therefrom, adding alkali, adding furfural and heating in the absence of phenolic bodies to boiling.

### Door End Protection

J. H. Malarkey (to M and M Wood Working Co.) U. S. 2,586,-240, Feb. 19. Device to protect door ends comprising a flat base portion the width of the door, to which it is to be applied and providing a flat bearing surface against the end of the door stile, a raised surface disposed in a plane equidistant from the plane of the base and having parts extending to the marginal edges of the base for elevating the door above the floor and prongs struck out from the bearing surface of the base plate opposite the raised surface at a distance from the marginal edges.

### Sawmill Carriage

L. R. Stanley and W. H. Pate. U. S. 2,586,271, Feb. 19. Propelling means for a saw mill log carriage comprising a length of track, a single cable secured at each end of the track, a carriage with an engine thereon, winding drums journaled on the carriage, a differential gear for each drum for rotating same in opposite directions, a clutch on each differential gear and a brake for each clutch for independently driving the drums.

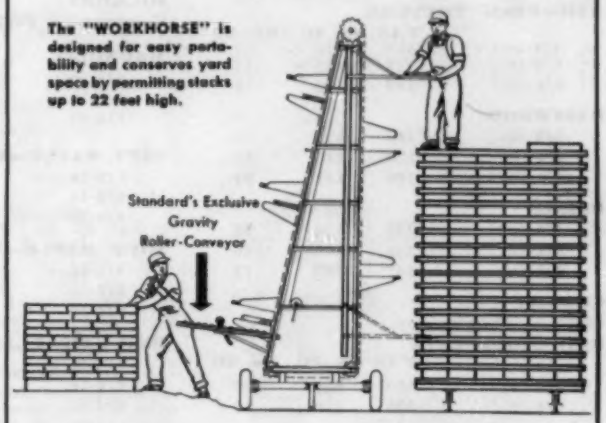
### Dovetailing

H. J. Eck (to Bell Machine Co.) U. S. 2,586,780, Feb. 19. Automatic mortising and tenoning machine.

### Coating

P. E. Marling (to Monsanto Chemical Co.) U. S. 2,587,497, Feb. 26. Heating vinyl tall oil esters with anthraquinone and a solvent to prepare a coating.


THE Standard WORKHORSE PAYS FOR ITSELF IN LABOR SAVINGS!


The "WORKHORSE" is designed for easy portability and conserves yard space by permitting stacks up to 22 feet high.
Standard's Exclusive Gravity Roller-Conveyor

● The gasoline or electric powered "WORKHORSE"—with its movable feed and take-off beds—makes yard or kiln stacking an easy two-man operation. Yes, it actually pays for itself in *labor savings* . . . it reduces labor turnover, because it makes lumber handling easy, increases production, eliminates labor fatigue, and cuts labor costs.

Standard's exclusive gravity roller-conveyor which automatically feeds the lumber into the jaws of the machine, gives you the quickest lumber handling possible! However, for yards where straight stacking (as pictured) is the only requirement *the "WORKHORSE" is available without the gravity conveyor.*

WE SELL THE FIRST Standard... Performance SELLS THE REPEATS!

Write for Illustrated Standard Catalog

*Manufacturers of Internal Fan Kilns*

STANDARD
Engineers and Manufacturers Since 1907
DRY KILN COMPANY

P. O. BOX 5708 • INDIANAPOLIS, INDIANA

# Markets

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of June 7, 1952. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

### SOUTHERN HARDWOODS

**F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'. on straight cars of upper bracket grades premiums are frequently being paid.**

**ASH—FIRM TEXTURE**

| | FAS | No. 1C | No. 2C |
|---|---|---|---|
| 4/4-in. | 155 | 110 | 62 |
| 6/4-in. | 170 | 120 | 67 |
| 8/4-in. | 180 | 140 | 70 |

**BASSWOOD**

| | | | |
|---|---|---|---|
| 4/4-in. | 160 | 125 | 80 |
| 6/4-in. | 170 | 135 | 87 |
| 8/4-in. | 180 | 145 | 90 |

**BEECH**

| | | | |
|---|---|---|---|
| 4/4-in | 125 | 100 | 55 |
| 6/4-in. | 140 | 110 | 60 |
| 8/4-in. | 167 | 127 | 72 |

**CHERRY**

Same as Appalachian

**RED GUM—PLAIN**

| | FAS | No. 1C | No. 2C |
|---|---|---|---|
| 4/4-in. | 200 | 150 | 70 |
| 6/4-in. | 220 | 170 | 75 |

**RED GUM—QUARTERED**

| | | | |
|---|---|---|---|
| 4/4-in. | 220 | 165 | 75 |
| 6/4-in. | 250 | 190 | 90 |
| 8/4-in. | 260 | 200 | 95 |

**SAP GUM—PLAIN**

| | | | |
|---|---|---|---|
| 4/4-in. | 110 | 85 | 42 |
| 6/4-in. | 125 | 105 | 45 |
| 8/4-in. | 160 | 140 | |

**HACKBERRY**

| | | | |
|---|---|---|---|
| 4/4-in. | 110 | 90 | 60 |
| 6/4-in. | 125 | 105 | 75 |
| 8/4-in. | 135 | 110 | 75 |

**HICKORY**

Temporarily suspended

**MAGNOLIA**

| | | | |
|---|---|---|---|
| 4/4-in. | 170 | 135 | 63 |
| 6/4-in. | 185 | 143 | 84 |
| 8/4-in | 205 | 147 | 86 |

**SOFT MAPLE—WHAD**

| | | | |
|---|---|---|---|
| 4/4-in. | 130 | 110 | 67 |
| 6/4-in. | 145 | 120 | 77 |
| 8/4-in. | 155 | 125 | 80 |

**SOFT MAPLE—WHND**

| | | | |
|---|---|---|---|
| 4/4-in. | 115 | 90 | 60 |
| 6/4-in. | 130 | 105 | 75 |
| 8/4-in | 135 | 110 | 80 |

**RED OAK—PLAIN**

| | | | |
|---|---|---|---|
| 4/4-in. | 175 | 105 | 60 |
| 6/4-in. | 190 | 135 | |
| 8/4-in. | 200 | 140 | |

**WHITE OAK—PLAIN**

| | | | |
|---|---|---|---|
| 4/4-in. | 180 | 115 | 62 |
| 6/4-in. | 195 | 140 | |
| 8/4-in. | 205 | 145 | |

**PECAN**

| | | | |
|---|---|---|---|
| 4/4-in. | 110 | 90 | 50 |
| 6/4-in. | 130 | 110 | 60 |
| 8/4-in. | 155 | 130 | 65 |

**POPLAR—PLAIN**

| | FAS | SAS | No. 1C |
|---|---|---|---|
| 4/4-in. | 165 | 155 | 135 |
| 6/4-in. | 185 | 175 | 140 |
| 8/4-in. | 205 | 195 | 150 |

**SYCAMORE—PLAIN**

| | FAS | No. 1C | No. 2C |
|---|---|---|---|
| 4/4-in. | 115 | 95 | 60 |
| 6/4-in. | 125 | 105 | 60 |

**TUPELO—PLAIN**

**TUF TEXTURE—DEEP SWAMP**

| | | | |
|---|---|---|---|
| 4/4-in. | 110 | 90 | 40 |
| 6/4-in. | 130 | 110 | 42 |
| 8/4-in. | 160 | 140 | |

**WILLOW**

| | | | |
|---|---|---|---|
| 4/4-in. | 140 | 120 | 60 |
| 6/4-in. | 143 | 123 | 67 |
| 8/4-in. | 150 | 125 | 70 |

### APPALACHIAN HARDWOODS

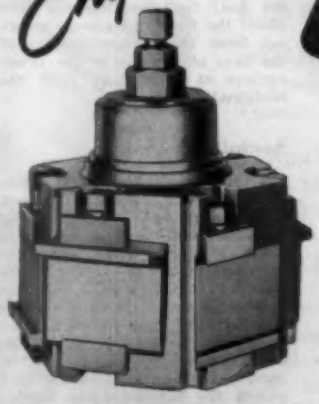
**F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 26, 1951 to consuming trade of band-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough, air dried & graded in accordance with**

Tannewitz
HIGH SPEED
BAND SAWS

Saws faster, smoother and easier than conventional band saws. Regularly increase production from 50% to 100% with consequent reduction of costs. Built by sawing machinery specialists. Write for circular.

THE TANNEWITZ WORKS
GRAND RAPIDS 4, MICHIGAN

SHIMER
Engineered for Production
EASED EDGE HEAD



for clean, fast, low-cost
- EASED EDGING
- MATCHING
- PLAIN JOINTING
- SIDING
- SHIPLAP

Here is a ruggedly built cutter head designed for extreme long service under the severest cutting conditions, yet a head that can't be surpassed for ease in adjusting, accuracy in pattern cutting and versatility of use! Six-bit model (pictured) and four-bit model both equipped with self-centering feature and clearance-protected, milled-to-pattern bits that hold their pattern permanently! (Securely positioned bits are adjustable for various thicknesses of stock).

WRITE FOR YOUR FREE COPY OF OUR ILLUSTRATED PATTERN BOOK!

SHIMER

SAMUEL J. SHIMER & SONS, Inc.
70 RACE STREET • MILTON, PENNA.

NHLA rules of inspection. Prices in dollars per M'. on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

| TOUGH ASH | FAS | FIF | No. 1C | No. 2C |
|---|---|---|---|---|
| 4/4-in. | 160 | 150 | 110 | 67 |
| 6/4-in. | 180 | 170 | 122 | 72 |
| 8/4-in. | 190 | 180 | 147 | 85 |

| BASSWOOD | | | | No. 2A |
|---|---|---|---|---|
| 4/4-in. | 180 | 170 | 130 | 84 |
| 6/4-in. | 190 | 180 | 137 | 94 |
| 8/4-in. | 195 | 185 | 147 | 96 |

| BEECH | | | | No. 2C |
|---|---|---|---|---|
| 4/4-in. | 145 | 135 | 110 | 75 |
| 6/4-in. | 160 | 150 | 130 | 75 |
| 8/4-in. | 170 | 160 | 130 | 80 |

| BIRCH | | | | |
|---|---|---|---|---|
| 4/4-in. | 205 | 195 | 140 | 80 |
| 6/4-in. | 220 | 210 | 150 | 85 |
| 8/4-in. | 230 | 220 | 155 | 90 |

| BUCKEYE | | | | |
|---|---|---|---|---|
| 4/4-in. | 135 | 125 | 100 | 65 |
| 6/4-in. | 160 | 150 | 115 | 73 |
| 8/4-in. | 165 | 155 | 120 | 78 |

| CHERRY | | | | |
|---|---|---|---|---|
| 4/4-in. | 220 | 210 | 150 | 90 |
| 6/4-in. | 240 | 230 | 170 | 95 |
| 8/4-in. | 250 | 240 | 180 | 100 |

| CHESTNUT | FAS | No. 1C | FAS WHND | 1C & B WHND |
|---|---|---|---|---|
| 4/4-in. | 165 | 115 | 135 | 125 |
| 6/4-in. | 170 | 120 | 140 | 130 |
| 8/4-in. | 175 | 125 | 150 | 140 |

| HICKORY | FAS | FIF | No. 1C | No. 2C |
|---|---|---|---|---|
| 4/4-in. | 125 | 115 | 78 | 53 |
| 6/4-in. | 145 | 125 | 86 | 58 |
| 8/4-in. | 165 | 155 | 90 | 60 |

| HARD MAPLE | | | | |
|---|---|---|---|---|
| 4/4-in. | 190 | 180 | 125 | 80 |
| 6/4-in. | 200 | 190 | 135 | 84 |
| 8/4-in. | 205 | 195 | 145 | 90 |

| SOFT MAPLE | | | | |
|---|---|---|---|---|
| 4/4-in. | 160 | 150 | 115 | 67 |
| 6/4-in. | 170 | 160 | 125 | 69 |
| 8/4-in. | 175 | 165 | 130 | 72 |

| RED OAK—PLAIN | | | |
|---|---|---|---|
| 4/4-in. | 185 | 175 | 120 |
| 6/4-in. | 200 | 190 | 135 |
| 8/4-in. | 215 | 205 | 145 |

| WHITE OAK—PLAIN | | | |
|---|---|---|---|
| 4/4-in. | 200 | 190 | 125 |
| 6/4-in. | 220 | 210 | 145 |
| 8/4-in. | 225 | 215 | 155 |

| WHITE OAK—WHND | FAS | FIF | C & B | No. 1C |
|---|---|---|---|---|
| 4/4-in. | 115 | 105 | 90 | 85 |
| 6/4-in. | 140 | 130 | 120 | 110 |
| 8/4-in. | 150 | 140 | 125 | 115 |

| YELLOW POPLAR—PLAIN | FAS | FIF | No. 1C | No. 2A |
|---|---|---|---|---|
| 4/4-in. | 210 | 200 | 140 | 88 |
| 6/4-in. | 220 | 210 | 150 | 93 |
| 8/4-in. | 230 | 220 | 160 | .. |

| POPLAR SQUARES | FAS | No. 1C & SD |
|---|---|---|
| 4x4-in. | 245 | 175 |
| 6x6-in. | 280 | 190 |
| 8x8-in. | 340 | 240 |

| WALNUT—STEAM TREATED | FAS 6' & up | FIF 6' & up | No. 1C | No. 2C |
|---|---|---|---|---|
| 4/4-in. | 350 | 305 | 185 | 80 |
| 6/4-in. | 370 | 325 | 210 | 95 |
| 8/4-in. | 385 | 340 | 235 | 100 |

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

### NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carload quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'.* On straight cars of upper bracket grades, premiums are frequently being paid.

| BROWN ASH | FAS | No. 1C | No. 2C |
|---|---|---|---|
| 4/4-in. | 145 | 105 | 72 |
| 6/4-in. | 155 | 120 | 83 |
| 8/4-in. | 160 | 130 | 88 |

| BASSWOOD | | | |
|---|---|---|---|
| 4/4-in. | 180 | 125 | 78 |
| 6/4-in. | 190 | 135 | 88 |
| 8/4-in. | 195 | 145 | 96 |

| BEECH | | | |
|---|---|---|---|
| 4/4-in. | 145 | 100 | 68 |
| 6/4-in. | 160 | 115 | 78 |
| 8/4-in. | 165 | 120 | 80 |

| BIRCH | | | |
|---|---|---|---|
| 4/4-in. | 265 | 145 | 80 |
| 6/4-in. | 275 | 160 | 90 |
| 8/4-in. | 280 | 175 | 100 |

| ROCK ELM | | | |
|---|---|---|---|
| 4/4-in. | 135 | 115 | 65 |
| 6/4-in. | 145 | 125 | 75 |
| 8/4-in. | 150 | 135 | 80 |

| SOFT ELM | | | |
|---|---|---|---|
| 4/4-in. | 125 | 105 | 71 |
| 6/4-in. | 135 | 115 | 81 |
| 8/4-in. | 140 | 120 | 86 |

| HARD MAPLE | | | |
|---|---|---|---|
| 4/4-in. | 190 | 130 | 78 |
| 6/4-in. | 200 | 140 | 81 |
| 8/4-in. | 205 | 145 | 32 |

| SOFT MAPLE | | | |
|---|---|---|---|
| 4/4-in. | 155 | 120 | 72 |
| 6/4-in. | 170 | 130 | 82 |
| 8/4-in. | 185 | 140 | 90 |

| RED OAK | | | |
|---|---|---|---|
| 4/4-in. | 175 | 125 | 77 |
| 6/4-in. | 185 | 145 | 82 |
| 8/4-in. | 195 | 155 | 85 |

*Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.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5 AUTOMATIC CROSS-CIRCULATING KILNS OPERATED BY TRAINED, EXPERIENCED KILN ENGINEERS . . . . DRYING UP TO 50' LENGTHS . . . UP TO 6" THICK

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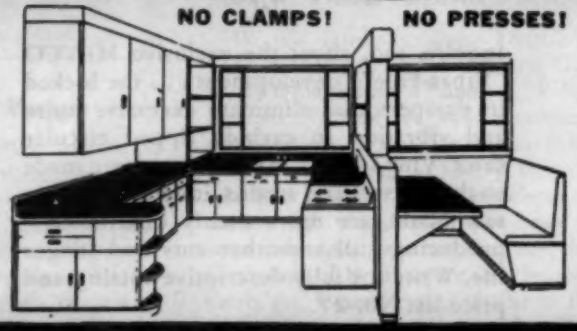

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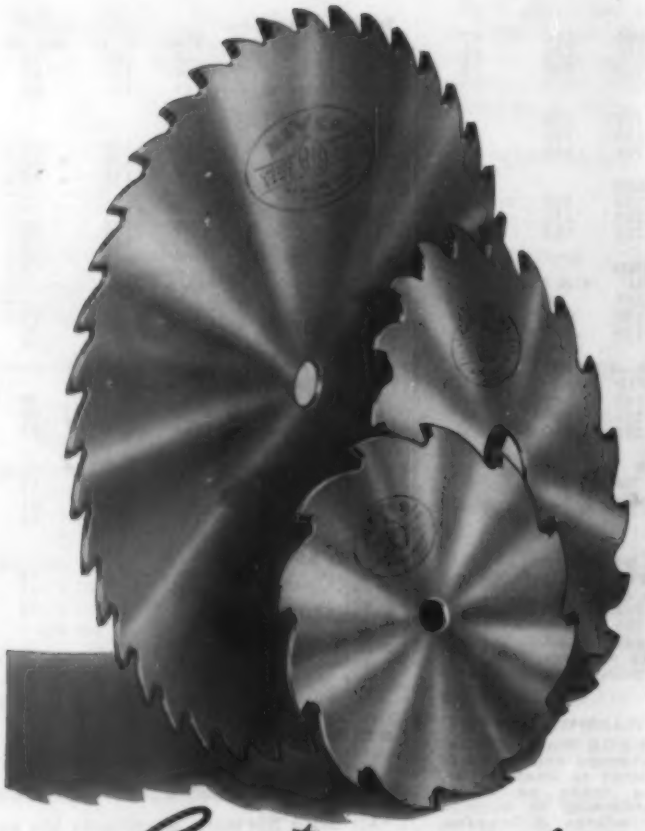

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## ...FOR TUNGSTEN CARBIDE

☆ **MEYCO** carbide tipped circular saws ARE DIFFERENT, because the blade and tooth design have been engineered for tungsten carbide teeth. It is this know-how of building a carbide tipped saw from the ground up, that has made MEYCO saws popular and accepted as the standard of the industry. MEYCO saws will last longer, produce smoother cuts and save you many times their small extra cost over ordinary circular saws.

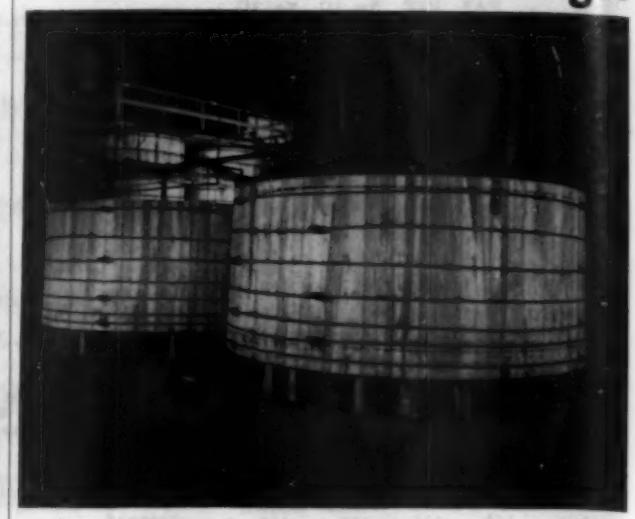
☆

Inquire, too, about the exclusive MEYCO "Vibra-Free"* development . . . the locked in dampers that eliminate excessive noise and vibration in carbide tipped circular saws. VIBRA-FREE* MEYCO saws are made so the stresses and strains, inherent in every saw blade, are more evenly distributed—producing still smoother cuts and longer life. Write for fully descriptive catalog and price list No. 27.

*PATENTED

W. F. MEYERS CO., INC., BEDFORD, INDIANA

# *Where* does ATLANTIC LUMBER go?



*Large Red Cypress tanks manufactured and installed by Chicago Wooden Tank Division of the Veneer Lumber and Plywood Company.*

Each of the hardwoods, and Cypress, handled by The Atlantic Lumber Company possesses qualities of particular adaptability or beauty that make its use especially desirable. These woods include, besides Cypress, such choice hardwoods as Ash, Basswood, Beech, Birch, Cherry, Gumwood, Maple, Oak, Sycamore, Yellow Poplar and Walnut.

Through knowledge, training and years of experience in handling hardwoods and cypress in many industries, your Atlantic Man is in a position to advise you regarding your choice of woods. His advice can save you money and improve your product. Consult your Atlantic Man.

## THE ATLANTIC LUMBER CO.

88 BROAD STREET, BOSTON, 4, MASS.
1055 SENECA, BUFFALO 10, N. Y.

# New and Improved Products

### Industrial Box Framer

The FMC Industrial Box Framer has been designed to meet the general demand throughout industry for a single nailing machine to handle the complete framing of wooden boxes with a minimum of changeover time to adjust for various box sizes.

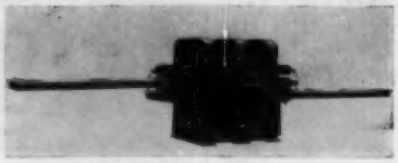
A single operator completes the framing of a box on this machine with three nailing strokes. Sides are end nailed in one stroke each and bottom is both end nailed and edge nailed in rectangular pattern on third nailing stroke. Up to 48 nails can be driven per stroke. Completed box is ejected through the open back of the machine onto a conveyor for removal.

A detailed illustrated engineering bulletin is available from Food Machinery and Chemical Corporation, Packing Equipment Division, Dept. W, Riverside, California.

### Circular Saw Sharpener

This new cam-actuated circular saw sharpener is being introduced by the Hanchett Manufacturing Co., Dept. W, Big Rapids, Michigan and Portland, Oregon.

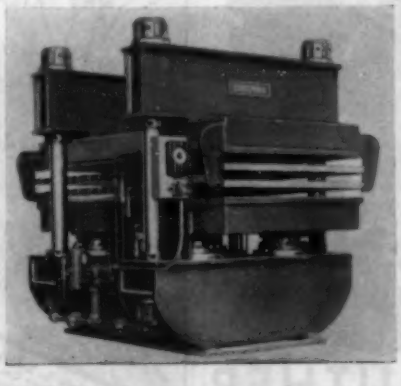
Designed by Hanchett for wide tooth spaced saws (safety type), the "Easy Cut" circular saw sharpener is said to generate the correct tooth shape with uniform, sharp, clean saw teeth. Precision built, this balanced unit has many outstanding features such as cam action, generation of the proper saw tooth lengths and shape, uniformity and accuracy; capacity for saws from 6" to 24" in diameter and special ½ H.P. capacitor motor.



### Semi-Automatic Loading Table

The V. Berthelsen Engineering Works, Inc., Dept. W, Joliet, Ill., announces the development of a semi-automatic Loading Table that is furnished with their Single (One) and Double (Two) Opening "VB" Hydraulic Hot Plate Presses.

This improvement is said to step up loading and unloading of the press by eliminating unnecessary travel by the workmen and increasing their efficiency by simplification of the operation. The Loading Table is an integral part of the "VB" Press and moves up and down with the platens while the press is in operation.



### Hot Plate Plywood Presses

A new line of "floor-type" hydraulic hot plate plywood presses has been announced by Columbia Machinery and Engineering Corp., Dept. W, 4th & High Streets, Hamilton, Ohio.

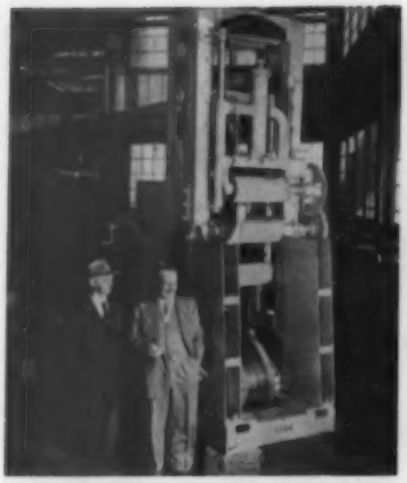
The new presses are designed for applications where a press of one to five daylights will meet production requirements and where economy in first cost, installation, operation and maintenance is desired. They are the end-feed type and are available in 52 inch by 102 inch platen size only.

### Allwood Hardboard

Allwood hoardboard, manufactured in a new $2½ million plant by Oregon Lumber Co., Dept. W., Dee, Ore. is now on the market in a variety of sizes, thicknesses, and in both tempered and standard grades. The product offers new application and use possibilities in the hardboard field. Developed after years of research into the chemical properties of ordinary waste slabwood the new and exclusive Allwood process produces a hardboard of sustained quality and strength.

### Molded V-Belt Sheaves

W. C. Products, Inc., Dept. W, 1748 Berkeley St., Santa Monica, Cal., is manufacturing a line of V-Belt Molded Sheaves for light machinery drives. They are molded from Compolene, a new type of fibrous material which is molded to close tolerances under high pressure. It possesses an extremely hard wearing surface that is unaffected by moisture, oil, temperature, etc. Compolene is similar to the material used in pressure-molded gears where severe wearing conditions exist. Molded gears and pulleys not only wear better but weigh less and run much quieter than metal pulleys, it is said.



### Premier Gangsaw

Dominion Bridge Premier gangsaws have been in use in Canada and the U.S.A. since their introduction a few years ago. A new feature is said to result in increased output, reduced wear on saws and reduced maintenance costs.

The sawing movement now embodies oscillation, accomplished by incorporating eccentrics in the lower guide blocks. These eccentrics move with the connecting rods and give the saw frame its oscillating movement at the bottom. The top guides are placed on an angle so that the frame, on the down stroke, is moving ahead, and on the up stroke, backward.

Write the Dominion Bridge Co., Ltd., Dept. W, P. O. Box 280, Montreal, Que.

### New Sanding Material

The Bay State Abrasive Products Co., Dept. W, 15 Union St., Westboro, Mass., faced the sandpaper problem with imagination and came up with a sanding fabric called "Gritcloth". This company reasoned that ordinary sanding materials defeat their own purpose because of the "solid" backing of paper or cloth. No sooner do they start removing paint or wood, than this material starts clogging the abrasive so that it cannot work.

The solution, they decided, was to give these removed particles a place to go, by the simple process of imbedding the abrasive in a tough, open-mesh fabric that holds the abrasive firmly, but lets the removed stock flow through the holes. It is said that factory tests indicate that it keeps right on working—from 10 to 15 times as long as ordinary sanding type of papers.

### New Controllers

Eight types of the Model 40 Controller are described in a new 32-page bulletin issued by The Foxboro Company, Dept. W, Foxboro, Mass. The eight basic types are Single Action, Dual, Duplex, Auto-Selector, Ratio, Relation, Pneumaticset and Time Schedule. Thus, with its standard specifications, or available modifications, every Model 40 instrument can be specifically engineered to its application, whether controlling temperature, pressure, flow, pH, conductivity or some other process variable.

The new bulletin contains 114 illustrations and diagrams, helpful in understanding and applying the advanced principles of automatic control. Each instrument is pictured with a typical process diagram and a characteristic chart record.

**CARBIDE TIPPED SAW BLADES**

with any others and you'll agree they're outstanding. Cut with equal ease thru plywood, laminated wood, teak, fireproof lumber, linoleum, plastics etc. Huther Quality in Carbide Saws is a "standard" among leading craftsmen.

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SAW MAKERS FOR OVER 65 YEARS

**Facilities To Serve You**

**DRY KILNS**—20 Tracks of Latest Moore Design Capacity 1 million feet per charge.

**DRY SHEDS**—Ample storage Adjacent to Carline Means Dry Lumber for you.

**DRY LOADING DOCK**—Can Load 19 Cars Under Roof. Assures you quick Shipment Regardless of Weather.

***THERE IS NEVER A LET DOWN IN OUR QUALITY-PRECISION MANUFACTURE***

**The Ralph L. SMITH Lumber Company**

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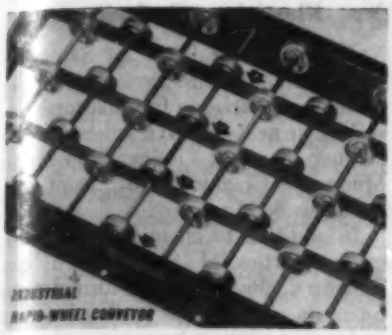


### Rapid-Wheel Conveyor

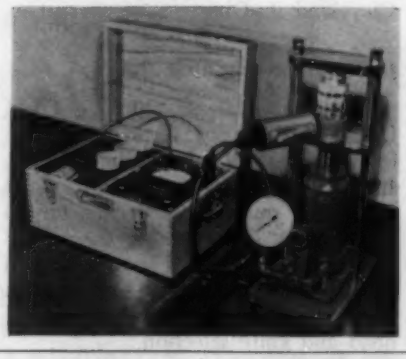
A new type of Rapid-Wheel gravity conveyor with increased load capacity for industrial use has just been announced by The Rapids-Standard Company, Inc. Dept. W, 342 Rapistan Bldg., Grand Rapids, 2, Michigan. This heavy-duty wheel conveyor can be used in place of bulkier, more expensive roller conveyor in many installations.

The new Industrial Rapid-Wheel conveyor has 3½-in. deep channel frames of 12-gauge steel for extra strength and rigidity. Each lane of wheels is reinforced with a steel center band which supports the axles at the point of greatest strain. These construction features permit distributed loads of up to a ton to be handled on a five-foot section of this new conveyor.

### Moisture Testing Instrument

A new instrument for testing moisture content in virtually any non-metallic, dry granular material has been announced by Moisture Register Co. Dept. W, Alhambra, Calif. The new model, G5, is the fifth in a series of similar instruments produced by the company since 1932 and incorporates several new features exclusive with Moisture Register.

The new G5 and its predecessor models have been used for accurate testing of such diverse materials as wood waste, glue powder, chemicals, and other materials.



### Hot-Spray Heater

The Spee-Flo Co. Dept. W, 3603 Harrisburg Blvd., Houston, Texas announces its new Model 202 hot-spray heater, the first practical unit available for the industrial refinisher who does not use production-line methods.

Model 202, like its revolutionary predecessor, Model 101, uses the original one-gallon paint can as the heating vessel, automatically mixing and heating one gallon of lacquer or enamel to uniform temperature and viscosity throughout.


turn scrap into profit with

**M&M HOGGING EQUIPMENT**

Utilize every bit of scrap by turning it into extra dollars with M & M hogging equipment. M & M machines are built in many types and sizes for slabs, edgings, trim, blocks, veneer, bark, and other combustible waste. Send us your scrap problem and we'll show you how M & M hogging equipment can solve it.

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Plastic Top **LAMINATORS!**

● For smooth, strong, ever-lasting bonds use NCC No. 30 Casein Glue or NCC Powdered Urea Resin Glue.

National Casein's No. 30 Casein and NCC Powdered Resin Glues are preferred by plastic top laminators . . . also by trailer home builders and by sash and door mills.

NCC No. 30 CASEIN GLUE far surpasses rigid Army-Navy and Federal specifications for a strong, highly water-resistant casein glue. Is easy to mix . . . a pleasure to use inside or outside. Impervious to extreme weather variations.

NCC POWDERED RESIN GLUE is preferred for its low water content . . . its easy-working and fast-setting characteristics . . . for the fact that it is waterproof . . . and can be depended upon for positive everlasting bonds.

Samples and suggestions without cost or obligation.

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## NEW LITERATURE

### Veneer Splicer Service Manual

A 50-page illustrated service manual to enable users to protect their investment in Diehl Tapeless Veneer Splicers has been developed by the G. M. Diehl Machine Works, Inc., Dept. W, Wabash, Indiana. The manual is the first of a series covering the line of Diehl Moulders, rip saws, cut-off saws, glue jointers and edge moulders, and veneer jointers and edge gluers.

It contains sections giving step-by-step direction for installation, lubrication and cleaning, general and special operating procedures, general maintenance, adjustments on the pressure bars, and installation of parts. Photographs clearly illustrate the various steps.

### Western Pine Publication Listing

A new, up-to-date listing of the complete file of Western Pine association promotional, educational and technical literature for use by the construction, lumber and other wood using industries and by educators is announced.

The new Schedule of Publications lists 99 separate publications with a short description of their contents and application in the consumer, building, dealer, technical and education fields. It also contains an order blank with a convenient checkoff for specification of quantity and imprinting, if desired. Copies may be secured without charge from Dept. W, Western Pine Association, Yeon Building, Portland 4, Oregon.

### Booklet Defines Coating Terms

Over 200 definitions of terms commonly used in industrial products finishing are contained in a new 16 page booklet, "Glossary of Industrial Coating Terms," produced by the General Industrial Division of The Sherwin-Williams Co. Copies may be obtained by writing to The Sherwin-Williams Co., General Industrial Division, Dept. W., 101 Prospect Ave., N. W., Cleveland 1, Ohio.

### Cutterhead Catalog

A new condensed, 20-page Diehl Cutterhead Catalog is now available from The G. M. Diehl Machine Works, Inc., Dept. W, Wabash, Indiana. It is a quick source of reference for all fabricating departments in woodworking industries. A special section features glue-joints, with cross-section illustrations, as an aid to both cutterhead and knife selection.

### New Plasticizer Bulletin

A technical bulletin on Santicizer 3, a sulfonamide type plasticizer particularly useful in formulating heat-sealing or heat-sensitive adhesives and lacquer coatings, is available from Monsanto Chemical Co., Dept. W, St. Louis 4, Mo.

In addition to chemical and physical properties of Santicizer 3, the bulletin includes typical formulations for nitro celulose heat-sealing coatings and paper coating lacquers, polyvinyl acetate adhesives; and zein metallic decorative paper coatings, back-coatings for pressure sensitive tapes and hot melts for paper adhesives.

### Tree Species in Kentucky

"Distribution of Tree Species in Kentucky" is a new book by Lake F. Compton and Robert K. Winters. In it you will find 12 maps showing the approximate range and frequency of 12 commercially significant species in Kentucky. These maps were compiled from Forest Survey Data for the State.

Forest industries, Chambers of Commerce, railroads, scientists, and many others should find these maps of value. Write to the U. S. Department of Agriculture, Forest Service, 111 Old Federal Bldg., Columbus 15, Ohio.


"OLIVER"
NO. 166 HAND PLANER AND
JOINTER

*Unmatched for truing up lumber and making perfect glue joints*

This heavy "Oliver" Jointer planes work with superb smoothness. Ground and planed table lowers for ¾-inch cut. Ball bearing cylinder. Mechanical brake cuts current, stops cylinder head. Fence can be moved across table, bevels to 45°. Adjustments accurately indicated. Four sizes: 12", 16", 24", 30". *Write for Bulletin No. 166.*

OLIVER MACHINERY COMPANY
Established 1890 GRAND RAPIDS 2, MICHIGAN

The "Extra Ingredient" in
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HARDWOOD PLYWOOD

For 34 years, skilled workmen, supervisors, and inspectors have cooperated to bring PERMAWOOD to its present highly regarded position in the industry. This pride of products is the "extra ingredient" in PERMAWOOD Hardwood Plywood.

*Panels get high polish and correct thickness in Darlington's Drum and Belt Sanders.*

We make PERMAWOOD panels in standard sizes, all veneer construction from 3/20" to 1-1/16" thick, and in lumber core construction in 3/4" and 13/16" thickness. Widths from 30" to 48"; lengths from 36" to 96". Write for latest stock lists and prices.

DARLINGTON VENEER CO., INC.
*Established in 1918*
DARLINGTON, SOUTH CAROLINA

### Drive-Belt Alignment

A new development in drive-belt alignment devices is the 1650 Series drill presses now available offering a two-way drive aligner-belt tensioner. Perfect drive belt alignment is assured and, without wrenches or tools; belt tension is instantly released for quick, easy speed changing.

A new brochure fully describing and illustrating this new line of drill presses will be sent by addressing Boice-Crane Company, Dept. W, 1016 Central Ave., Toledo 6, Ohio.

### New Freight Rate Map

The traffic department of the West Coast Lumberman's Association, Dept. W, 1410 S. W. Morrison, Portland 5, Ore., is working on a new freight rate map of the United States. For the first time the rate map will contain rates from northern California coast shipping points as well as western Oregon and Washington and British Columbia districts as in the past.

The new rate map is made necessary by the decision of the Interstate Commerce Commission in Ex Parte 175-B, issued April 14, 1952, which changes the freight rate structure on lumber and forest products and all other items from the west.

### Sanding Bulletin

"Better, Faster Finishing for Production and Maintenance Jobs" is the title of a new bulletin, No. 2109, on industrial sanding applications published by the Pneumatic Division of Sundstrand Machine Tool Co., Dept. W, Rockford, Illinois.

The bulletin covers three major subjects—(1) advantages of straight-line sanding action, (2) illustrations showing how air sanders are used for a multiplicity of operations in the plant, and (3) specifications on the four models of Sundstrand Air Sanders and Accessories.

### Gluing Boat Timbers

The gluing of laminated wood keels, ribs and other boat timbers for Navy use is analyzed in a special eight-page bulletin offered by the Borden Company's Chemical Division. Reviewing all phases of marine service gluing to military specifications with Cascophen resin glues, the booklet also contains a "trouble shooting" guide to help correct possible faulty gluing procedures. Accompanying the booklet are data sheets on resin glues approved for marine laminations. Bulletin 87 is available on request to the Borden Co., Chemical Division, Dept. W, 350 Madison Avenue, New York 17, N. Y.

### Vertical Band Resaw

A new catalog has just been issued describing the McDonough 44-inch Vertical Band Resaw. It indicates the latest improvements on this model which include a variable speed gear transmission, electro-filmed feed roll drive shaft, mitre drive gears, and several other improvements. Write the McDonough Mfg. Co., Dept. W, Eau Claire, Wis.

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CASKETS
CORES

Our three mills are located in the Mississippi, Atchafalaya and Red River basins of Louisiana which produce the finest Willow in America.

Large and well assorted stocks of this fine willow are ready for immediate mill shipments at all times. We can meet your exact needs, all thicknesses and grades 4/4" to 8/4" or include in mixed cars with Port Barre white ash and other Southern Hardwoods. Prompt attention will be given to all inquiries.

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Manufacturers of Southern Hardwoods
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Hardwood Plywoods for Quality Trade
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# Appalachian hardwood News


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ROBBINSVILLE, N. C.

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MANUFACTURERS & WHOLESALERS
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*Quality Hardwoods*

*General Office*
CAMDEN-ON-GAULEY, W. VA.

Kiln Drying Facilities — Planing Mill

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Manufacturers
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Telephone 198

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**MILLETT HARDWOOD LUMBER Co.**

*Appalachian North & South Central Hardwoods*

313 Columbia Bldg

Louisville 2, Ky.

Telephone Clay 2500


## ". . . America's Finest"

A new edition of the popular brochure "Appalachian Hardwoods—America's Finest" is now ready for distribution. Profusely illustrated, the brochure discusses the properties of the major Appalachian hardwoods and presents twelve pages of information of interest to architects and consumers. Copy of the brochure may be obtained from Appalachian Hardwood Manufacturers, Inc., 414 Walnut St., Cincinnati 2, Ohio.

## "Old Fayette" Falls

J. P. Hamer Lumber Co., Kenova, W. Va., recently cut one of the largest white oaks in the Appalachian territory. The tree stood on the property of the New River Company in Fayette county, West Virginia. Long known as "Old Fayette", the tree was a landmark in that vicinity for generations, but having reached full maturity, it was utilized in accordance with good forestry practice. With a stump diameter of 52" and a trunk of 64', the tree yielded four logs scaling 4833 feet.

## Appalachian Summer Meeting

The Greenbrier Hotel, White Sulphur Springs, W. Va., will be the scene of the Appalachian Summer Meeting, Thursday, July 31, and Friday, August 1.

No effort will be spared to make the meeting a notable affair, one fully comparable to the gathering held last summer in Asheville. With the assistance of a committee of West Virginia members, a schedue will be prepared to provide ample time for business sessions and a program of entertainment that will complement the attractions of one of the country's most famous hotels.


**THE MOWER LUMBER COMPANY**

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| CODE . . . | |
|---|---|
| 1 Bandmill | 22 Sycamore |
| 2 Resaw | 23 Walnut |
| 3 Circular Mill | 24 Others |
| 4 Planing Mill | 25 Hemlock |
| 5 Dry Kilns | 26 Pine-White |
| 6 Ash | 27 Pine-Yellow |
| 7 Basswood | 28 Spruce |
| 8 Beech | 29 Oak Planking |
| 9 Birch | 30 Oak-Car Stock |
| 10 Buckeye | 31 Oak-S.S.E. |
| 11 Butternut | 32 Oak-Truck Body |
| 12 Chestnut | 33 Oak-Timbers |
| 13 Cherry | 34 Cross Ties |
| 14 Gum-Black | 35 Oak Flooring |
| 15 Hickory | 36 Maple Flooring |
| 16 Locust | 37 Beech Flooring |
| 17 Maple-Hard | 38 Dimension Semi Fin. & Fin. |
| 18 Maple-Soft | 39 Dimension Rough |
| 19 Oak-Red | 40 Stepping Pl. |
| 20 Oak-White | 41 Mouldings |
| 21 Poplar | 42 Others |

## "Degrading"

*(Continued from page 58)*

Chicago. These costs were corrected for volumetric change through a rise in moisture content from 8% to 14%. The accompanying bar graph shows combined moisture variations of 8-and 12" widths. (Plate 2.) Better appearance was noticeable in stock dried to the higher moisture content levels. Appearance of knots was improved by virtue of lesser checking and smoother planing as well as less tearing and sloughing out of edge knots.

### Recommendations

The optimum moisture content to which Ponderosa Pine common lumber should be dried must be determined individually at each operation. Several factors influence the final choice. One important consideration lies in the ability of a plant to withdraw for redrying that portion of heavy pieces which are discovered *before* the stock is dressed.

It is common practice for the lumber graders in a plant to complain when heavy pieces are found in the stock but seldom to mention any evidence of degrade due to excessive dryness. Because of such tendency, those in charge of drying are often influenced


plywood

From the world-famous forest resources of Finland, imported all-birch plywood—sizes up to 4' x 6', all thicknesses...cut to buyer's specifications. Also molded plywood chair seats and backs in standard sizes and shapes and to your specification; all-birch 3/4" 13-ply laminates for cabinet doors, table tops, etc.; lumber core for table tops; door panels of birch plywood (1/8" 3-ply).

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"BIG CHIEF" for General Purpose High Production Work.

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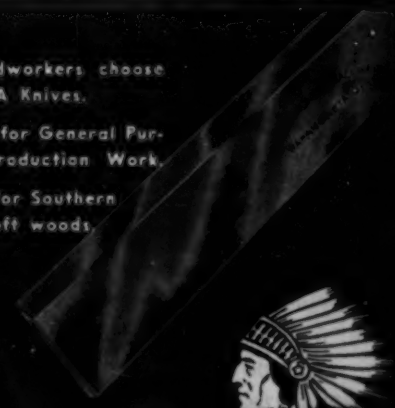

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# *Automatically* LIDS MIXED SIZE BOXES

## fmc RANDOM SIZE BOX LIDDER

## up to 600 per hour

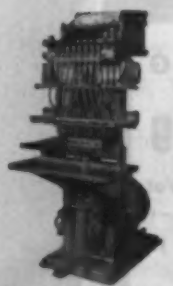
The *fmc* Random Size Box Lidder meets the demand for a nailing machine which lids boxes of mixed sizes fed from a common conveyor. One operator can lid up to 600 boxes per hour on this fast and versatile machine. As boxes of mixed sizes are fed into the machine it automatically adjusts to the proper size, drives the required number of nails and discharges the lidded box on an outgoing conveyor, taking the place of several nailing machines which would otherwise be required to handle the same volume and variety of production.

**fmc INDUSTRIAL EDGE NAILER**

Includes most features of standard Industrial Center-Line Nailer with special chuck arrangement which permits work to pass in front of the machine as well as through it. Designed for edge nailing, crate and box framing, cleating.

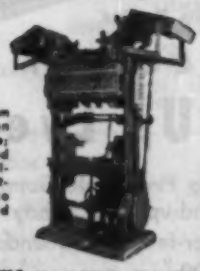
**fmc INDUSTRIAL CENTER-LINE NAILER**

Designed for large scale industrial nailing — wide pattern selection. Picks and drives up to 24 nails per stroke; all type nails, 3d to 10d. Open back machine; standard widths 48", 66"; others available.



**fmc CLOSED BACK FC NAILER**

Accommodates work from 1" to 18" deep, 8 run nail feed; 8 nail drive; handles 4d, 5d and 6d nails. Ideal for flat nailing, box making, cleating and lidding; also ammunition box end making.



**fmc AMMUNITION BOX MAKER (AC-5A)**

Adjustable heavy duty machine for nailing sides and bottoms in three strokes to ends of various types of ammunition and industrial boxes no larger than 16" high, 16" wide and 26" long.

OTHER fmc NAILING MACHINES...

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PACKING EQUIPMENT DIVISION • RIVERSIDE, CALIFORNIA

Dept. E

- RANDOM SIZE LIDDER ☐
- CENTER-LINE NAILER ☐
- EDGE NAILER ☐
- FC NAILER ☐
- AC-5A NAILER ☐

NAME_____

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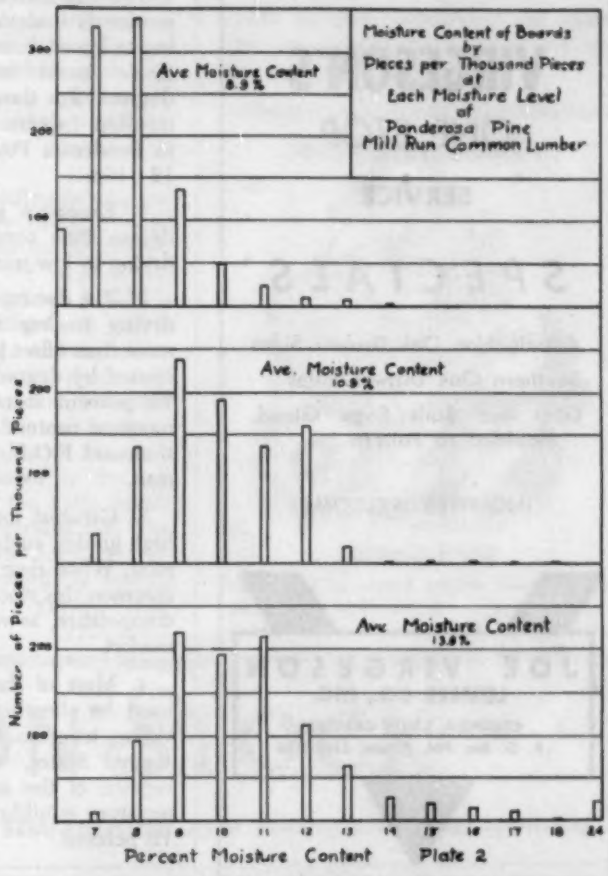
CITY_____ STATE_____

NM-20

to a point where overdrying prevails. Therefore, to insure more profitable operation, common lumber should be checked frequently for moisture content. Extended time schedules are needed to dry common lumber sufficiently even, so that the few hard-to-dry boards are within an acceptable range of moisture content. By shortening schedules to the point where a small percentage of these pieces of higher moisture content still remain, greater economies in drying time can be effeced. If those heavy pieces are not withdrawn until after they have been surfaced, however, they will subsequently shrink below acceptable sizes and will not be saleable as a standard item.

Another factor which limits the feasibility of drying to the more economical optimum of 12 - 13% moisture content is the practicability of segregating the common lumber into heart and sap at a plant. If proper segregation can be practiced, not only will a saving in total drying time be attained, but a smaller range in moisture content can be achieved with a greater portion of the stock held closer to the desired optimum.

Although lumber dried to a substantially higher moisture content than 12-13% shows little degrade, the

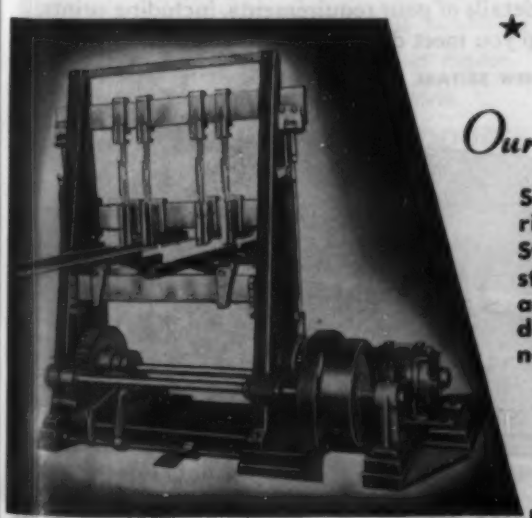

Moisture Content of Boards by Pieces per Thousand Pieces at Each Moisture Level of Ponderosa Pine Mill Run Common Lumber
Ave Moisture Content 8.9%
Ave. Moisture Content 10.9%
Ave Moisture Content 13.8%
Number of Pieces per Thousand Pieces
Percent Moisture Content

**This chart shows how some boards deviate from the average no matter what moisture content is attained**

Plate 2


# Short-cuts with Staples

**It will pay you to investigate the many applications of St. Joe Staplers, and how they are simplifying the many complex fastening problems that confront industry today.**



## Our 75th Year

**Saving through short-cuts in production . . . savings in materials. One of the many examples is the St. Joe Flatwork Stapler, designed to turn out sides, tops and bottoms for standard fruit and vegetable containers and industrial crates and pallets. Prove to yourself what "St. Joe" Staplers can do—send for bulletins and technical data on your needs—no obligation. Write us today!**

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**ST. JOSEPH, MICHIGAN**

**VIRGESON'S**

ONE STOP

**SERVICE**

*SPECIALS*

Appalachian Oak Drawer Sides

Southern Oak Drawer Sides

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subsequent shrinkage in storage and in service is undesirable. Likewise, drying to lower than 12-13% develops degrade losses in rapidly mounting degrees. For these reasons the recommended (optimum) moisture content in Ponderosa Pine common lumber is 12 - 13%.

1. Excessive grade losses in Ponderosa Pine common are caused by drying to low moisture contents.

2. The decrease in shipping cost by drying to low moisture contents is more than offset by a decrease in value caused by degrade. By drying only to 13 percent instead of nine percent moisture content a saving of $3.10 per thousand F.O.B. Chicago will be realized.

3. Greatest loss in value occurs in high grades, such as No. 1 and 2 common. When degraded to No. 3 and 4 common this stock is placed in a more competitive, as well as a lower priced market.

4. Most of the common lumber is used for sheathing, sub-floor, exterior siding, trim etc. For all sections of the United States, with perhaps the exception of the southwest, an exterior moisture equilibrium is approximately 12 percent.

Common lumber shipped at this moisture content will change but little in use. The optimum moisture content of 12 - 13% meets these use conditions.

5. Excessive degrade at the mill results when all the commons are dried to a low moisture content in order to meet the needs of a small portion of specialty items. These items may be profitably segregated on the dry sorter for redrying or on the green chain for special handling.

6. When air dried stock has reached optimum dryness additional degrade can be minimized by tearing down and bulk piling.

**WOODICTIONARY**

**BOSS DOG**

**A device on a sawmill carriage used to grip face of log, cant or timber.**


# Ammunition Box Hardware

If your contracts call for hardware for ammunition boxes like that shown here, or for other ordnance equipment—save time by consulting Stanley. The largest manufacturer of hinges and hardware specialities, The Stanley Works has the "know-how" to help you develop the items you need, and the plant facilities to supply them on time.

Send us complete details of your requirements, including prints, if possible. We'll help you meet delivery commitments.

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STANLEY
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HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

## Sharpening Knives

*(Continued from page 34)*

Formed knives may be jointed by guiding the stone along a jointing template across the width of the cutter or by the use of a formed stone, ground or shaped exactly the reverse of the contour of the knives. With the stone placed in line with the knives, the jointing carriage is locked to prevent cross-movement. The jointing device allows for adjustment, so the stone may be moved toward and at right angles to the cutterhead.

The stone may be cut by the knife steel if drawn across it slowly but the stone will cut the knife edge when the knife is drawn across the stone rapidly. Therefore, with the head standing still, the jointing stone is first brought down lightly against the knives to permit the head to be revolved slowly against it to make a perfect fit. The stone is then backed away to start the machine and with the cutterhead revolving at full speed, the stone is returned slowly and lightly until all knives are jointed even and uniform.

The combination knife-marking and set-up box is usually used to build up heads for the automatic shaping lathe. The knives are marked for grinding by mounting knife blanks in the holders and coating them with a thin coat of whiting. A template is prepared to the contour of a cross-section of the turning and the guide pin of the knife-marking unit is moved along the contour edge of the template as the lathe arbor is revolved to bring the face of the knife blanks in contact with the marking pin. This transfers the contour form to the blanks by a mark through the whiting coat. The knives are ground accurately to these marks and are again checked against the template for accurate reproduction.

### WOODICTIONARY

**EXTRACTIVES**

**Materials in wood which can be dissolved out with hot or cold water.**


# DIMENSION STOCK

**ROUGH • SOLID • GLUED UP • SEMI-FINISHED AND FINISHED**

MAPLE BIRCH BEECH

Kiln Dried Dimension Stock
Plain S2S—Machined—Turned
Solid and Glued Up

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**AD or KD Hardwood or Softwood**
**100% CLEAR OUR SPECIALTY**

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Hickory and Ash tool handle blanks, handles and dowels.

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Other species avaliable
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ALL ORDERS CAREFULLY MANUFACTURED TO YOUR SPECIFICATIONS

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# KILN DRIED LUMBER

FOR

## immediate shipment

EITHER TRUCKLOAD OR CARLOAD LOTS

### Northern Hardwoods

| | |
|---|---|
| Basswood | 4/4 to 8/4 |
| Birch | 4/4 to 8/4 |
| Hard Maple | 4/4 to 12/4 |
| Soft Elm | 4/4 to 10/4 |

### Appalachian Hardwoods

| | |
|---|---|
| Beech | 4/4 to 8/4 |
| Red Oak | 5/8 to 8/4 |
| White Oak | 4/4 to 8/4 |
| Wormy Chestnut | 4/4 to 8/4 |

### Southern Hardwoods

| | |
|---|---|
| Ash | 4/4 to 8/4 |
| Hackberry | 4/4, 5/4 |
| Sap Gum | 4/4 to 10/4 |
| Tupelo Gum | 4/4 to 8/4 |
| Red Gum | 4/4 |
| Soft Maple | 4/4 to 12/4 |
| Sycamore | 5/8, 4/4 |
| Poplar | 4/4 to 12/4 |
| Cypress (AD) | 4/4 |

### Mahogany

| | |
|---|---|
| Honduras | 4/4 to 12/4 |

Available for direct shipment from New Orleans, AD or KD, or in truck shipments from Chicago.

### Walnut

| | |
|---|---|
| Steamed | 5/8 to 8/4 |

### Pine

| | |
|---|---|
| Parana (Brazilian) | 4/4 to 8/4 |

**The above hardwoods are in No. 1 Com. & Better Grades**

and generally are available in higher grades.

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Crane & MacMahon, Inc.
St. Marys, Ohio

Henry V. DeGalan Co., Sales Office
1105 Beaufait St.
Detroit 7, Mich.

Frary Wood Turning Co., Inc.
Wilton, Me.

The Harrison Co.
260 Broadway
New York, N. Y.

Levenson Woodturning & Mfg. Co.
3755 S. Broadway Place
Los Angeles 7, Calif.

G. F. Mooney & Son, Inc.
66 S. Main St.
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The Stratton Co.
100 Main St.
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H. G. Winter & Son
Kingfield, Me.

### WOOD PARTS TO ORDER

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Curry Wood Products
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Grand Rapids Dowel Works
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The Woodcraft Corp.
Bay City, Mich.

### WOOD SPOOLS & REELS

North Waterford Spool Co.
North Waterford, Me.

H. G. Winter & Son
Kingfield, Me.

If you manufacture Wood Turnings your firm name should be listed on this page. The cost is nominal. For further information write today: WOOD AND WOOD PRODUCTS, 139 N. Clark, Chicago 2, Ill.